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<110> F. Hoffmann-La Roche AG

<120> RA antigenic peptides

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<170> PatentIn version 3.2

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Gly Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg
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Gly Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg Thr Asp
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Ala

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Ile Asn Asn Gln Leu Thr Leu Asp Ser Asn Thr Lys Tyr Phe His Lys
1   5   10   15

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Gly Arg Lys

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Met Pro Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser
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Met Pro Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser
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Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly
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Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly Arg Lys
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Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu
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Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu Met
1               5               10              15


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Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu
1               5               10


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Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu Met
1               5               10              15

Pro Ser
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His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu
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Gly His Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp
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Gly Val Asp Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser
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Asp Arg Asn

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Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg
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Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg Asn
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Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg Asn Thr
1   5   10   15

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Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp Arg
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Gly Ser Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu
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Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg
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Gly Ser Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg
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Arg Glu Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu
1               5                   10


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Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser Pro Pro Ala Arg
1               5                   10                  15

Asn
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Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser Pro Pro Ala Arg
1               5                   10                  15


Asn Leu Lys



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Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser Pro Pro Ala Arg
1               5                   10                  15


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Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys
1               5                   10                  15


Pro Gly



<210>    32
<211>    17
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<213>    Homo sapiens

<400>    32

Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys
1               5                   10                  15


Pro



<210>    33
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<213>    Homo sapiens

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Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala
1               5                   10


<210>    34
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Gly Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala
1               5                   10


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<400>  35

Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile
1               5                   10                  15


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Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu
1               5                   10                  15


Met Gly


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Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu Met
1               5                   10                  15


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Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu
1               5                   10                  15


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Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro Gln Glu
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Leu Leu Leu Phe Leu Pro Pro Leu Leu Leu Leu Asp Val Pro Thr
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Ala Ala Val Gln Ala Ser Pro Leu Gln Ala Leu Asp Phe Phe Gly Asn
            35   40   45

Gly Pro Pro Val Asn Tyr Lys Thr Gly Asn Leu Tyr Leu Arg Gly Pro
    50   55   60

Leu Lys Lys Ser Asn Ala Pro Leu Val Asn Val Thr Leu Tyr Tyr Glu
65   70   75   80

Ala Leu Cys Gly Gly Cys Arg Ala Phe Leu Ile Arg Glu Leu Phe Pro
                85   90   95

Thr Trp Leu Leu Val Met Glu Ile Leu Asn Val Thr Leu Val Pro Tyr
            100   105   110

Gly Asn Ala Gln Glu Gln Asn Val Ser Gly Arg Trp Glu Phe Lys Cys
            115   120   125

Gln His Gly Glu Glu Glu Cys Lys Phe Asn Lys Val Glu Ala Cys Val
        130   135   140

Leu Asp Glu Leu Asp Met Glu Leu Ala Phe Leu Thr Ile Val Cys Met
145   150   155   160

Glu Glu Phe Glu Asp Met Glu Arg Ser Leu Pro Leu Cys Leu Gln Leu
            165   170   175

Tyr Ala Pro Gly Leu Ser Pro Asp Thr Ile Met Glu Cys Ala Met Gly
            180   185   190

Asp Arg Gly Met Gln Leu Met His Ala Asn Ala Gln Arg Thr Asp Ala
        195   200   205

Leu Gln Pro Pro His Glu Tyr Val Pro Trp Val Thr Val Asn Gly Lys
        210   215   220

Pro Leu Glu Asp Gln Thr Gln Leu Leu Thr Leu Val Cys Gln Leu Tyr
225   230   235   240

```
        Gln Gly Lys Lys Pro Asp Val Cys Pro Ser Ser Thr Ser Ser Leu Arg
                        245             250             255
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5
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        Ser Val Cys Phe Lys
                    260
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10
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        1               5               10              15
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25
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        Leu Leu Leu Leu Leu Leu Ala Gly Ala Arg Ala Glu Glu Glu Met Leu
                    20              25              30
```

30
```
        Glu Asn Val Ser Leu Val Cys Pro Lys Asp Ala Thr Arg Phe Lys His
                35              40              45
```

35
```
        Leu Arg Lys Tyr Thr Tyr Asn Tyr Glu Ala Glu Ser Ser Ser Gly Val
            50              55              60
```

40
```
        Pro Gly Thr Ala Asp Ser Arg Ser Ala Thr Arg Ile Asn Cys Lys Val
        65              70              75              80
```

```
        Glu Leu Glu Val Pro Gln Leu Cys Ser Phe Ile Leu Lys Thr Ser Gln
                        85              90              95
```

45
```
        Cys Thr Leu Lys Glu Val Tyr Gly Phe Asn Pro Glu Gly Lys Ala Leu
                    100             105             110
```

50
```
        Leu Lys Lys Thr Lys Asn Ser Glu Glu Phe Ala Ala Ala Met Ser Arg
                    115             120             125
```

55
```
        Tyr Glu Leu Lys Leu Ala Ile Pro Glu Gly Lys Gln Val Phe Leu Tyr
            130             135             140
```

```
        Pro Glu Lys Asp Glu Pro Thr Tyr Ile Leu Asn Ile Lys Arg Gly Ile
        145             150             155             160
```

60
```
        Ile Ser Ala Leu Leu Val Pro Pro Glu Thr Glu Glu Ala Lys Gln Val
                    165             170             175
```

65
```
        Leu Phe Leu Asp Thr Val Tyr Gly Asn Cys Ser Thr His Phe Thr Val
                    180             185             190
```

70
```
        Lys Thr Arg Lys Gly Asn Val Ala Thr Glu Ile Ser Thr Glu Arg Asp
```

```
            195              200              205

        Leu Gly Gln Cys Asp Arg Phe Lys Pro Ile Arg Thr Gly Ile Ser Pro
            210              215              220

        Leu Ala Leu Ile Lys Gly Met Thr Arg Pro Leu Ser Thr Leu Ile Ser
        225              230              235              240

        Ser Ser Gln Ser Cys Gln Tyr Thr Leu Asp Ala Lys Arg Lys His Val
                         245              250              255

        Ala Glu Ala Ile Cys Lys Glu Gln His Leu Phe Leu Pro Phe Ser Tyr
                         260              265              270

        Asn Asn Lys Tyr Gly Met Val Ala Gln Val Thr Gln Thr Leu Lys Leu
                 275              280              285

        Glu Asp Thr Pro Lys Ile Asn Ser Arg Phe Phe Gly Glu Gly Thr Lys
            290              295              300

        Lys Met Gly Leu Ala Phe Glu Ser Thr Lys Ser Thr Ser Pro Pro Lys
        305              310              315              320

        Gln Ala Glu Ala Val Leu Lys Thr Leu Gln Glu Leu Lys Lys Leu Thr
                         325              330              335

        Ile Ser Glu Gln Asn Ile Gln Arg Ala Asn Leu Phe Asn Lys Leu Val
                 340              345              350

        Thr Glu Leu Arg Gly Leu Ser Asp Glu Ala Val Thr Ser Leu Leu Pro
                 355              360              365

        Gln Leu Ile Glu Val Ser Ser Pro Ile Thr Leu Gln Ala Leu Val Gln
            370              375              380

        Cys Gly Gln Pro Gln Cys Ser Thr His Ile Leu Gln Trp Leu Lys Arg
        385              390              395              400

        Val His Ala Asn Pro Leu Leu Ile Asp Val Val Thr Tyr Leu Val Ala
                         405              410              415

        Leu Ile Pro Glu Pro Ser Ala Gln Gln Leu Arg Glu Ile Phe Asn Met
                 420              425              430

        Ala Arg Asp Gln Arg Ser Arg Ala Thr Leu Tyr Ala Leu Ser His Ala
                 435              440              445

        Val Asn Asn Tyr His Lys Thr Asn Pro Thr Gly Thr Gln Glu Leu Leu
            450              455              460

        Asp Ile Ala Asn Tyr Leu Met Glu Gln Ile Gln Asp Asp Cys Thr Gly
        465              470              475              480
```

Asp Glu Asp Tyr Thr Tyr Leu Ile Leu Arg Val Ile Gly Asn Met Gly
           485   490   495

5

Gln Thr Met Glu Gln Leu Thr Pro Glu Leu Lys Ser Ser Ile Leu Lys
         500   505   510

10

Cys Val Gln Ser Thr Lys Pro Ser Leu Met Ile Gln Lys Ala Ala Ile
      515   520   525

Gln Ala Leu Arg Lys Met Glu Pro Lys Asp Lys Asp Gln Glu Val Leu
15   530   535   540

Leu Gln Thr Phe Leu Asp Asp Ala Ser Pro Gly Asp Lys Arg Leu Ala
545   550   555   560

20

Ala Tyr Leu Met Leu Met Arg Ser Pro Ser Gln Ala Asp Ile Asn Lys
         565   570   575

25

Ile Val Gln Ile Leu Pro Trp Glu Gln Asn Glu Gln Val Lys Asn Phe
         580   585   590

Val Ala Ser His Ile Ala Asn Ile Leu Asn Ser Glu Glu Leu Asp Ile
30   595   600   605

Gln Asp Leu Lys Lys Leu Val Lys Glu Ala Leu Lys Glu Ser Gln Leu
   610   615   620
35

Pro Thr Val Met Asp Phe Arg Lys Phe Ser Arg Asn Tyr Gln Leu Tyr
625   630   635   640

40

Lys Ser Val Ser Leu Pro Ser Leu Asp Pro Ala Ser Ala Lys Ile Glu
         645   650   655

45

Gly Asn Leu Ile Phe Asp Pro Asn Asn Tyr Leu Pro Lys Glu Ser Met
         660   665   670

Leu Lys Thr Thr Leu Thr Ala Phe Gly Phe Ala Ser Ala Asp Leu Ile
50   675   680   685

Glu Ile Gly Leu Glu Gly Lys Gly Phe Glu Pro Thr Leu Glu Ala Leu
   690   695   700
55

Phe Gly Lys Gln Gly Phe Phe Pro Asp Ser Val Asn Lys Ala Leu Tyr
705   710   715   720

60

Trp Val Asn Gly Gln Val Pro Asp Gly Val Ser Lys Val Leu Val Asp
         725   730   735

65

His Phe Gly Tyr Thr Lys Asp Asp Lys His Glu Gln Asp Met Val Asn
         740   745   750

70

Gly Ile Met Leu Ser Val Glu Lys Leu Ile Lys Asp Leu Lys Ser Lys

```
                 755                   760                   765

        Glu Val Pro Glu Ala Arg Ala Tyr Leu Arg Ile Leu Gly Glu Glu Leu
  5         770                 775                 780

        Gly Phe Ala Ser Leu His Asp Leu Gln Leu Leu Gly Lys Leu Leu Leu
        785                 790                 795                 800
  10

        Met Gly Ala Arg Thr Leu Gln Gly Ile Pro Gln Met Ile Gly Glu Val
                        805                 810                 815

  15
        Ile Arg Lys Gly Ser Lys Asn Asp Phe Phe Leu His Tyr Ile Phe Met
                    820                 825                 830

  20    Glu Asn Ala Phe Glu Leu Pro Thr Gly Ala Gly Leu Gln Leu Gln Ile
                    835                 840                 845

        Ser Ser Ser Gly Val Ile Ala Pro Gly Ala Lys Ala Gly Val Lys Leu
  25        850                 855                 860

        Glu Val Ala Asn Met Gln Ala Glu Leu Val Ala Lys Pro Ser Val Ser
        865                 870                 875                 880
  30

        Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile Pro Asp Phe Ala Arg
                        885                 890                 895

  35
        Ser Gly Val Gln Met Asn Thr Asn Phe Phe His Glu Ser Gly Leu Glu
                    900                 905                 910

  40    Ala His Val Ala Leu Lys Ala Gly Lys Leu Lys Phe Ile Ile Pro Ser
                    915                 920                 925

        Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly Asn Thr Leu His Leu
  45        930                 935                 940

        Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro Leu Ile Glu Asn Arg
        945                 950                 955                 960
  50

        Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro Gly Leu Asn Tyr Cys
                        965                 970                 975

  55
        Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr Asp Ser Ala Ser Tyr
                    980                 985                 990

  60    Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu Glu Leu Arg Pro Thr
                    995                1000                1005

        Gly Glu Ile Glu Gln Tyr Ser Val Ser Ala Thr Tyr Glu Leu Gln
  65        1010                1015                1020

        Arg Glu Asp Arg Ala Leu Val Asp Thr Leu Lys Phe Val Thr Gln
  70        1025                1030                1035
```

Ala Glu Gly Ala Lys Gln Thr Glu Ala Thr Met Thr Phe Lys Tyr
    1040   1045   1050

5

Asn Arg Gln Ser Met Thr Leu Ser Ser Glu Val Gln Ile Pro Asp
    1055   1060   1065

10

Phe Asp Val Asp Leu Gly Thr Ile Leu Arg Val Asn Asp Glu Ser
    1070   1075   1080

Thr Glu Gly Lys Thr Ser Tyr Arg Leu Thr Leu Asp Ile Gln Asn
15 1085   1090   1095

Lys Lys Ile Thr Glu Val Ala Leu Met Gly His Leu Ser Cys Asp
    1100   1105   1110

20

Thr Lys Glu Glu Arg Lys Ile Lys Gly Val Ile Ser Ile Pro Arg
    1115   1120   1125

25

Leu Gln Ala Glu Ala Arg Ser Glu Ile Leu Ala His Trp Ser Pro
    1130   1135   1140

Ala Lys Leu Leu Leu Gln Met Asp Ser Ser Ala Thr Ala Tyr Gly
30 1145   1150   1155

Ser Thr Val Ser Lys Arg Val Ala Trp His Tyr Asp Glu Glu Lys
35 1160   1165   1170

Ile Glu Phe Glu Trp Asn Thr Gly Thr Asn Val Asp Thr Lys Lys
    1175   1180   1185

40

Met Thr Ser Asn Phe Pro Val Asp Leu Ser Asp Tyr Pro Lys Ser
    1190   1195   1200

45

Leu His Met Tyr Ala Asn Arg Leu Leu Asp His Arg Val Pro Glu
    1205   1210   1215

Thr Asp Met Thr Phe Arg His Val Gly Ser Lys Leu Ile Val Ala
50 1220   1225   1230

Met Ser Ser Trp Leu Gln Lys Ala Ser Gly Ser Leu Pro Tyr Thr
55 1235   1240   1245

Gln Thr Leu Gln Asp His Leu Asn Ser Leu Lys Glu Phe Asn Leu
    1250   1255   1260

60

Gln Asn Met Gly Leu Pro Asp Phe His Ile Pro Glu Asn Leu Phe
    1265   1270   1275

65

Leu Lys Ser Asp Gly Arg Val Lys Tyr Thr Leu Asn Lys Asn Ser
    1280   1285   1290

70

Leu Lys Ile Glu Ile Pro Leu Pro Phe Gly Gly Lys Ser Ser Arg

                    1295   1300   1305

5   Asp Leu Lys Met Leu Glu Thr Val Arg Thr Pro Ala Leu His Phe
             1310   1315   1320

10   Lys Ser Val Gly Phe His Leu Pro Ser Arg Glu Phe Gln Val Pro
             1325   1330   1335

         Thr Phe Thr Ile Pro Lys Leu Tyr Gln Leu Gln Val Pro Leu Leu
             1340   1345   1350

15   Gly Val Leu Asp Leu Ser Thr Asn Val Tyr Ser Asn Leu Tyr Asn
             1355   1360   1365

20   Trp Ser Ala Ser Tyr Ser Gly Gly Asn Thr Ser Thr Asp His Phe
             1370   1375   1380

25   Ser Leu Arg Ala Arg Tyr His Met Lys Ala Asp Ser Val Val Asp
             1385   1390   1395

         Leu Leu Ser Tyr Asn Val Gln Gly Ser Gly Glu Thr Thr Tyr Asp
             1400   1405   1410

30   His Lys Asn Thr Phe Thr Leu Ser Cys Asp Gly Ser Leu Arg His
             1415   1420   1425

35   Lys Phe Leu Asp Ser Asn Ile Lys Phe Ser His Val Glu Lys Leu
             1430   1435   1440

40   Gly Asn Asn Pro Val Ser Lys Gly Leu Leu Ile Phe Asp Ala Ser
             1445   1450   1455

45   Ser Ser Trp Gly Pro Gln Met Ser Ala Ser Val His Leu Asp Ser
             1460   1465   1470

50   Lys Lys Lys Gln His Leu Phe Val Lys Glu Val Lys Ile Asp Gly
             1475   1480   1485

55   Gln Phe Arg Val Ser Ser Phe Tyr Ala Lys Gly Thr Tyr Gly Leu
             1490   1495   1500

         Ser Cys Gln Arg Asp Pro Asn Thr Gly Arg Leu Asn Gly Glu Ser
             1505   1510   1515

60   Asn Leu Arg Phe Asn Ser Ser Tyr Leu Gln Gly Thr Asn Gln Ile
             1520   1525   1530

65   Thr Gly Arg Tyr Glu Asp Gly Thr Leu Ser Leu Thr Ser Thr Ser
             1535   1540   1545

         Asp Leu Gln Ser Gly Ile Ile Lys Asn Thr Ala Ser Leu Lys Tyr
             1550   1555   1560

70

```
        Glu Asn  Tyr Glu Leu Thr Leu  Lys Ser Asp Thr Asn  Gly Lys Tyr
            1565                1570                1575

5
        Lys Asn  Phe Ala Thr Ser Asn  Lys Met Asp Met Thr  Phe Ser Lys
            1580                1585                1590


10      Gln Asn  Ala Leu Leu Arg Ser  Glu Tyr Gln Ala Asp  Tyr Glu Ser
            1595                1600                1605


        Leu Arg  Phe Phe Ser Leu Leu  Ser Gly Ser Leu Asn  Ser His Gly
15          1610                1615                1620


        Leu Glu  Leu Asn Ala Asp Ile  Leu Gly Thr Asp Lys  Ile Asn Ser
            1625                1630                1635
20

        Gly Ala  His Lys Ala Thr Leu  Arg Ile Gly Gln Asp  Gly Ile Ser
            1640                1645                1650

25
        Thr Ser  Ala Thr Thr Asn Leu  Lys Cys Ser Leu Leu  Val Leu Glu
            1655                1660                1665


30      Asn Glu  Leu Asn Ala Glu Leu  Gly Leu Ser Gly Ala  Ser Met Lys
            1670                1675                1680


        Leu Thr  Thr Asn Gly Arg Phe  Arg Glu His Asn Ala  Lys Phe Ser
35          1685                1690                1695


        Leu Asp  Gly Lys Ala Ala Leu  Thr Glu Leu Ser Leu  Gly Ser Ala
            1700                1705                1710
40

        Tyr Gln  Ala Met Ile Leu Gly  Val Asp Ser Lys Asn  Ile Phe Asn
            1715                1720                1725

45
        Phe Lys  Val Ser Gln Glu Gly  Leu Lys Leu Ser Asn  Asp Met Met
            1730                1735                1740


50      Gly Ser  Tyr Ala Glu Met Lys  Phe Asp His Thr Asn  Ser Leu Asn
            1745                1750                1755


        Ile Ala  Gly Leu Ser Leu Asp  Phe Ser Ser Lys Leu  Asp Asn Ile
55          1760                1765                1770


        Tyr Ser  Ser Asp Lys Phe Tyr  Lys Gln Thr Val Asn  Leu Gln Leu
            1775                1780                1785
60

        Gln Pro  Tyr Ser Leu Val Thr  Thr Leu Asn Ser Asp  Leu Lys Tyr
            1790                1795                1800

65
        Asn Ala  Leu Asp Leu Thr Asn  Asn Gly Lys Leu Arg  Leu Glu Pro
            1805                1810                1815


70      Leu Lys  Leu His Val Ala Gly  Asn Leu Lys Gly Ala  Tyr Gln Asn
```

                1820   1825   1830

5   Asn Glu Ile Lys His Ile Tyr Ala Ile Ser Ser Ala Ala Leu Ser
                1835   1840   1845

         Ala Ser Tyr Lys Ala Asp Thr Val Ala Lys Val Gln Gly Val Glu
10   1850   1855   1860

         Phe Ser His Arg Leu Asn Thr Asp Ile Ala Gly Leu Ala Ser Ala
                1865   1870   1875

15
         Ile Asp Met Ser Thr Asn Tyr Asn Ser Asp Ser Leu His Phe Ser
                1880   1885   1890

20   Asn Val Phe Arg Ser Val Met Ala Pro Phe Thr Met Thr Ile Asp
                1895   1900   1905

         Ala His Thr Asn Gly Asn Gly Lys Leu Ala Leu Trp Gly Glu His
25   1910   1915   1920

         Thr Gly Gln Leu Tyr Ser Lys Phe Leu Leu Lys Ala Glu Pro Leu
                1925   1930   1935
30
         Ala Phe Thr Phe Ser His Asp Tyr Lys Gly Ser Thr Ser His His
                1940   1945   1950

35
         Leu Val Ser Arg Lys Ser Ile Ser Ala Ala Leu Glu His Lys Val
                1955   1960   1965

40   Ser Ala Leu Leu Thr Pro Ala Glu Gln Thr Gly Thr Trp Lys Leu
                1970   1975   1980

         Lys Thr Gln Phe Asn Asn Asn Glu Tyr Ser Gln Asp Leu Asp Ala
45   1985   1990   1995

         Tyr Asn Thr Lys Asp Lys Ile Gly Val Glu Leu Thr Gly Arg Thr
                2000   2005   2010
50
         Leu Ala Asp Leu Thr Leu Leu Asp Ser Pro Ile Lys Val Pro Leu
                2015   2020   2025

55
         Leu Leu Ser Glu Pro Ile Asn Ile Ile Asp Ala Leu Glu Met Arg
                2030   2035   2040

60   Asp Ala Val Glu Lys Pro Gln Glu Phe Thr Ile Val Ala Phe Val
                2045   2050   2055

         Lys Tyr Asp Lys Asn Gln Asp Val His Ser Ile Asn Leu Pro Phe
65   2060   2065   2070

         Phe Glu Thr Leu Gln Glu Tyr Phe Glu Arg Asn Arg Gln Thr Ile
                2075   2080   2085
70

```
       Ile Val  Val Val Glu Asn Val  Gln Arg Asn Leu Lys  His Ile Asn
          2090                 2095                 2100

5

       Ile Asp  Gln Phe Val Arg Lys  Tyr Arg Ala Ala Leu  Gly Lys Leu
          2105                 2110                 2115

10     Pro Gln  Gln Ala Asn Asp Tyr  Leu Asn Ser Phe Asn  Trp Glu Arg
          2120                 2125                 2130

       Gln Val  Ser His Ala Lys Glu  Lys Leu Thr Ala Leu  Thr Lys Lys
15        2135                 2140                 2145

       Tyr Arg  Ile Thr Glu Asn Asp  Ile Gln Ile Ala Leu  Asp Asp Ala
          2150                 2155                 2160
20

       Lys Ile  Asn Phe Asn Glu Lys  Leu Ser Gln Leu Gln  Thr Tyr Met
          2165                 2170                 2175

25
       Ile Gln  Phe Asp Gln Tyr Ile  Lys Asp Ser Tyr Asp  Leu His Asp
          2180                 2185                 2190

30     Leu Lys  Ile Ala Ile Ala Asn  Ile Ile Asp Glu Ile  Ile Glu Lys
          2195                 2200                 2205

       Leu Lys  Ser Leu Asp Glu His  Tyr His Ile Arg Val  Asn Leu Val
35        2210                 2215                 2220

       Lys Thr  Ile His Asp Leu His  Leu Phe Ile Glu Asn  Ile Asp Phe
          2225                 2230                 2235
40

       Asn Lys  Ser Gly Ser Ser Thr  Ala Ser Trp Ile Gln  Asn Val Asp
          2240                 2245                 2250

45
       Thr Lys  Tyr Gln Ile Arg Ile  Gln Ile Gln Glu Lys  Leu Gln Gln
          2255                 2260                 2265

50     Leu Lys  Arg His Ile Gln Asn  Ile Asp Ile Gln His  Leu Ala Gly
          2270                 2275                 2280

       Lys Leu  Lys Gln His Ile Glu  Ala Ile Asp Val Arg  Val Leu Leu
55        2285                 2290                 2295

       Asp Gln  Leu Gly Thr Thr Ile  Ser Phe Glu Arg Ile  Asn Asp Val
          2300                 2305                 2310
60

       Leu Glu  His Val Lys His Phe  Val Ile Asn Leu Ile  Gly Asp Phe
          2315                 2320                 2325

65
       Glu Val  Ala Glu Lys Ile Asn  Ala Phe Arg Ala Lys  Val His Glu
          2330                 2335                 2340

70     Leu Ile  Glu Arg Tyr Glu Val  Asp Gln Gln Ile Gln  Val Leu Met
```

```
            2345                    2350                      2355

 5      Asp Lys Leu Val Glu Leu Thr His Gln Tyr Lys Leu Lys Glu Thr
            2360                2365                2370


        Ile Gln Lys Leu Ser Asn Val Leu Gln Gln Val Lys Ile Lys Asp
10          2375                2380                2385


        Tyr Phe Glu Lys Leu Val Gly Phe Ile Asp Asp Ala Val Lys Lys
            2390                2395                2400

15
        Leu Asn Glu Leu Ser Phe Lys Thr Phe Ile Glu Asp Val Asn Lys
            2405                2410                2415


20      Phe Leu Asp Met Leu Ile Lys Lys Leu Lys Ser Phe Asp Tyr His
            2420                2425                2430


        Gln Phe Val Asp Glu Thr Asn Asp Lys Ile Arg Glu Val Thr Gln
25          2435                2440                2445


        Arg Leu Asn Gly Glu Ile Gln Ala Leu Glu Leu Pro Gln Lys Ala
            2450                2455                2460
30

        Glu Ala Leu Lys Leu Phe Leu Glu Glu Thr Lys Ala Thr Val Ala
            2465                2470                2475
35
        Val Tyr Leu Glu Ser Leu Gln Asp Thr Lys Ile Thr Leu Ile Ile
            2480                2485                2490

40      Asn Trp Leu Gln Glu Ala Leu Ser Ser Ala Ser Leu Ala His Met
            2495                2500                2505


        Lys Ala Lys Phe Arg Glu Thr Leu Glu Asp Thr Arg Asp Arg Met
45          2510                2515                2520


        Tyr Gln Met Asp Ile Gln Gln Glu Leu Gln Arg Tyr Leu Ser Leu
            2525                2530                2535
50

        Val Gly Gln Val Tyr Ser Thr Leu Val Thr Tyr Ile Ser Asp Trp
            2540                2545                2550
55
        Trp Thr Leu Ala Ala Lys Asn Leu Thr Asp Phe Ala Glu Gln Tyr
            2555                2560                2565


60      Ser Ile Gln Asp Trp Ala Lys Arg Met Lys Ala Leu Val Glu Gln
            2570                2575                2580


        Gly Phe Thr Val Pro Glu Ile Lys Thr Ile Leu Gly Thr Met Pro
65          2585                2590                2595


        Ala Phe Glu Val Ser Leu Gln Ala Leu Gln Lys Ala Thr Phe Gln
            2600                2605                2610
70
```

```
        Thr Pro  Asp Phe Ile Val Pro  Leu Thr Asp Leu Arg  Ile Pro Ser
            2615                 2620                 2625

 5
        Val Gln  Ile Asn Phe Lys Asp  Leu Lys Asn Ile Lys  Ile Pro Ser
            2630                 2635                 2640

10
        Arg Phe  Ser Thr Pro Glu Phe  Thr Ile Leu Asn Thr  Phe His Ile
            2645                 2650                 2655

        Pro Ser  Phe Thr Ile Asp Phe  Val Glu Met Lys Val  Lys Ile Ile
15          2660                 2665                 2670

        Arg Thr  Ile Asp Gln Met Gln  Asn Ser Glu Leu Gln  Trp Pro Val
            2675                 2680                 2685
20
        Pro Asp  Ile Tyr Leu Arg Asp  Leu Lys Val Glu Asp  Ile Pro Leu
            2690                 2695                 2700

25
        Ala Arg  Ile Thr Leu Pro Asp  Phe Arg Leu Pro Glu  Ile Ala Ile
            2705                 2710                 2715

30
        Pro Glu  Phe Ile Ile Pro Thr  Leu Asn Leu Asn Asp  Phe Gln Val
            2720                 2725                 2730

        Pro Asp  Leu His Ile Pro Glu  Phe Gln Leu Pro His  Ile Ser His
35          2735                 2740                 2745

        Thr Ile  Glu Val Pro Thr Phe  Gly Lys Leu Tyr Ser  Ile Leu Lys
            2750                 2755                 2760
40
        Ile Gln  Ser Pro Leu Phe Thr  Leu Asp Ala Asn Ala  Asp Ile Gly
            2765                 2770                 2775

45
        Asn Gly  Thr Thr Ser Ala Asn  Glu Ala Gly Ile Ala  Ala Ser Ile
            2780                 2785                 2790

50
        Thr Ala  Lys Gly Glu Ser Lys  Leu Glu Val Leu Asn  Phe Asp Phe
            2795                 2800                 2805

        Gln Ala  Asn Ala Gln Leu Ser  Asn Pro Lys Ile Asn  Pro Leu Ala
55          2810                 2815                 2820

        Leu Lys  Glu Ser Val Lys Phe  Ser Ser Lys Tyr Leu  Arg Thr Glu
            2825                 2830                 2835
60
        His Gly  Ser Glu Met Leu Phe  Phe Gly Asn Ala Ile  Glu Gly Lys
            2840                 2845                 2850

65
        Ser Asn  Thr Val Ala Ser Leu  His Thr Glu Lys Asn  Thr Leu Glu
            2855                 2860                 2865

70
        Leu Ser  Asn Gly Val Ile Val  Lys Ile Asn Asn Gln  Leu Thr Leu
```

                    2870   2875   2880

       5   Asp Ser Asn Thr Lys Tyr Phe His Lys Leu Asn Ile Pro Lys Leu
                    2885   2890   2895

      10   Asp Phe Ser Ser Gln Ala Asp Leu Arg Asn Glu Ile Lys Thr Leu
                    2900   2905   2910

      15   Leu Lys Ala Gly His Ile Ala Trp Thr Ser Ser Gly Lys Gly Ser
                    2915   2920   2925

      20   Trp Lys Trp Ala Cys Pro Arg Phe Ser Asp Glu Gly Thr His Glu
                    2930   2935   2940

      25   Ser Gln Ile Ser Phe Thr Ile Glu Gly Pro Leu Thr Ser Phe Gly
                    2945   2950   2955

      30   Leu Ser Asn Lys Ile Asn Ser Lys His Leu Arg Val Asn Gln Asn
                    2960   2965   2970

                Leu Val Tyr Glu Ser Gly Ser Leu Asn Phe Ser Lys Leu Glu Ile
                    2975   2980   2985

      35   Gln Ser Gln Val Asp Ser Gln His Val Gly His Ser Val Leu Thr
                    2990   2995   3000

      40   Ala Lys Gly Met Ala Leu Phe Gly Glu Gly Lys Ala Glu Phe Thr
                    3005   3010   3015

                Gly Arg His Asp Ala His Leu Asn Gly Lys Val Ile Gly Thr Leu
                    3020   3025   3030

      45   Lys Asn Ser Leu Phe Phe Ser Ala Gln Pro Phe Glu Ile Thr Ala
                    3035   3040   3045

      50   Ser Thr Asn Asn Glu Gly Asn Leu Lys Val Arg Phe Pro Leu Arg
                    3050   3055   3060

      55   Leu Thr Gly Lys Ile Asp Phe Leu Asn Asn Tyr Ala Leu Phe Leu
                    3065   3070   3075

      60   Ser Pro Ser Ala Gln Gln Ala Ser Trp Gln Val Ser Ala Arg Phe
                    3080   3085   3090

                Asn Gln Tyr Lys Tyr Asn Gln Asn Phe Ser Ala Gly Asn Asn Glu
                    3095   3100   3105

      65   Asn Ile Met Glu Ala His Val Gly Ile Asn Gly Glu Ala Asn Leu
                    3110   3115   3120

      70   Asp Phe Leu Asn Ile Pro Leu Thr Ile Pro Glu Met Arg Leu Pro
                    3125   3130   3135

Tyr Thr Ile Ile Thr Thr Pro Pro Leu Lys Asp Phe Ser Leu Trp
    3140   3145   3150

Glu Lys Thr Gly Leu Lys Glu Phe Leu Lys Thr Thr Lys Gln Ser
    3155   3160   3165

Phe Asp Leu Ser Val Lys Ala Gln Tyr Lys Lys Asn Lys His Arg
    3170   3175   3180

His Ser Ile Thr Asn Pro Leu Ala Val Leu Cys Glu Phe Ile Ser
    3185   3190   3195

Gln Ser Ile Lys Ser Phe Asp Arg His Phe Glu Lys Asn Arg Asn
    3200   3205   3210

Asn Ala Leu Asp Phe Val Thr Lys Ser Tyr Asn Glu Thr Lys Ile
    3215   3220   3225

Lys Phe Asp Lys Tyr Lys Ala Glu Lys Ser His Asp Glu Leu Pro
    3230   3235   3240

Arg Thr Phe Gln Ile Pro Gly Tyr Thr Val Pro Val Val Asn Val
    3245   3250   3255

Glu Val Ser Pro Phe Thr Ile Glu Met Ser Ala Phe Gly Tyr Val
    3260   3265   3270

Phe Pro Lys Ala Val Ser Met Pro Ser Phe Ser Ile Leu Gly Ser
    3275   3280   3285

Asp Val Arg Val Pro Ser Tyr Thr Leu Ile Leu Pro Ser Leu Glu
    3290   3295   3300

Leu Pro Val Leu His Val Pro Arg Asn Leu Lys Leu Ser Leu Pro
    3305   3310   3315

His Phe Lys Glu Leu Cys Thr Ile Ser His Ile Phe Ile Pro Ala
    3320   3325   3330

Met Gly Asn Ile Thr Tyr Asp Phe Ser Phe Lys Ser Ser Val Ile
    3335   3340   3345

Thr Leu Asn Thr Asn Ala Glu Leu Phe Asn Gln Ser Asp Ile Val
    3350   3355   3360

Ala His Leu Leu Ser Ser Ser Ser Ser Val Ile Asp Ala Leu Gln
    3365   3370   3375

Tyr Lys Leu Glu Gly Thr Thr Arg Leu Thr Arg Lys Arg Gly Leu
    3380   3385   3390

Lys Leu Ala Thr Ala Leu Ser Leu Ser Asn Lys Phe Val Glu Gly

```
              3395                 3400                 3405

          Ser His  Asn Ser Thr Val Ser  Leu Thr Thr Lys Asn  Met Glu Val
    5         3410                 3415                 3420


          Ser Val  Ala Lys Thr Thr Lys  Ala Glu Ile Pro Ile  Leu Arg Met
   10         3425                 3430                 3435


          Asn Phe  Lys Gln Glu Leu Asn  Gly Asn Thr Lys Ser  Lys Pro Thr
              3440                 3445                 3450
   15

          Val Ser  Ser Ser Met Glu Phe  Lys Tyr Asp Phe Asn  Ser Ser Met
              3455                 3460                 3465

   20
          Leu Tyr  Ser Thr Ala Lys Gly  Ala Val Asp His Lys  Leu Ser Leu
              3470                 3475                 3480


          Glu Ser  Leu Thr Ser Tyr Phe  Ser Ile Glu Ser Ser  Thr Lys Gly
   25         3485                 3490                 3495


          Asp Val  Lys Gly Ser Val Leu  Ser Arg Glu Tyr Ser  Gly Thr Ile
              3500                 3505                 3510
   30

          Ala Ser  Glu Ala Asn Thr Tyr  Leu Asn Ser Lys Ser  Thr Arg Ser
              3515                 3520                 3525

   35
          Ser Val  Lys Leu Gln Gly Thr  Ser Lys Ile Asp Asp  Ile Trp Asn
              3530                 3535                 3540


          Leu Glu  Val Lys Glu Asn Phe  Ala Gly Glu Ala Thr  Leu Gln Arg
   40         3545                 3550                 3555


          Ile Tyr  Ser Leu Trp Glu His  Ser Thr Lys Asn His  Leu Gln Leu
   45         3560                 3565                 3570


          Glu Gly  Leu Phe Phe Thr Asn  Gly Glu His Thr Ser  Lys Ala Thr
              3575                 3580                 3585
   50

          Leu Glu  Leu Ser Pro Trp Gln  Met Ser Ala Leu Val  Gln Val His
              3590                 3595                 3600

   55
          Ala Ser  Gln Pro Ser Ser Phe  His Asp Phe Pro Asp  Leu Gly Gln
              3605                 3610                 3615


          Glu Val  Ala Leu Asn Ala Asn  Thr Lys Asn Gln Lys  Ile Arg Trp
   60         3620                 3625                 3630


          Lys Asn  Glu Val Arg Ile His  Ser Gly Ser Phe Gln  Ser Gln Val
   65         3635                 3640                 3645


          Glu Leu  Ser Asn Asp Gln Glu  Lys Ala His Leu Asp  Ile Ala Gly
              3650                 3655                 3660
   70
```

Ser Leu Glu Gly His Leu Arg Phe Leu Lys Asn Ile Ile Leu Pro
    3665   3670   3675

5

Val Tyr Asp Lys Ser Leu Trp Asp Phe Leu Lys Leu Asp Val Thr
    3680   3685   3690

10   Thr Ser Ile Gly Arg Arg Gln His Leu Arg Val Ser Thr Ala Phe
            3695   3700   3705

Val Tyr Thr Lys Asn Pro Asn Gly Tyr Ser Phe Ser Ile Pro Val
    3710   3715   3720

15

Lys Val Leu Ala Asp Lys Phe Ile Thr Pro Gly Leu Lys Leu Asn
    3725   3730   3735

20

Asp Leu Asn Ser Val Leu Val Met Pro Thr Phe His Val Pro Phe
    3740   3745   3750

25   .   Thr Asp Leu Gln Val Pro Ser Cys Lys Leu Asp Phe Arg Glu Ile
                3755   3760   3765

Gln Ile Tyr Lys Lys Leu Arg Thr Ser Ser Phe Ala Leu Asn Leu
30   3770   3775   3780

Pro Thr Leu Pro Glu Val Lys Phe Pro Glu Val Asp Val Leu Thr
35   3785   3790   3795

Lys Tyr Ser Gln Pro Glu Asp Ser Leu Ile Pro Phe Phe Glu Ile
    3800   3805   3810

40

Thr Val Pro Glu Ser Gln Leu Thr Val Ser Gln Phe Thr Leu Pro
    3815   3820   3825

45

Lys Ser Val Ser Asp Gly Ile Ala Ala Leu Asp Leu Asn Ala Val
    3830   3835   3840

50   Ala Asn Lys Ile Ala Asp Phe Glu Leu Pro Thr Ile Ile Val Pro
            3845   3850   3855

Glu Gln Thr Ile Glu Ile Pro Ser Ile Lys Phe Ser Val Pro Ala
55   3860   3865   3870

Gly Ile Val Ile Pro Ser Phe Gln Ala Leu Thr Ala Arg Phe Glu
    3875   3880   3885

60

Val Asp Ser Pro Val Tyr Asn Ala Thr Trp Ser Ala Ser Leu Lys
    3890   3895   3900

65

Asn Lys Ala Asp Tyr Val Glu Thr Val Leu Asp Ser Thr Cys Ser
    3905   3910   3915

70   Ser Thr Val Gln Phe Leu Glu Tyr Glu Leu Asn Val Leu Gly Thr

```
                    3920                  3925                   3930

 5        His Lys Ile Glu Asp Gly Thr Leu Ala Ser Lys Thr Lys Gly Thr
              3935              3940              3945

          Leu Ala His Arg Asp Phe Ser Ala Glu Tyr Glu Glu Asp Gly Lys
10            3950              3955              3960

          Phe Glu Gly Leu Gln Glu Trp Glu Gly Lys Ala His Leu Asn Ile
              3965              3970              3975
15
          Lys Ser Pro Ala Phe Thr Asp Leu His Leu Arg Tyr Gln Lys Asp
              3980              3985              3990

20        Lys Lys Gly Ile Ser Thr Ser Ala Ala Ser Pro Ala Val Gly Thr
              3995              4000              4005

          Val Gly Met Asp Met Asp Glu Asp Asp Asp Phe Ser Lys Trp Asn
25            4010              4015              4020

          Phe Tyr Tyr Ser Pro Gln Ser Ser Pro Asp Lys Lys Leu Thr Ile
              4025              4030              4035
30
          Phe Lys Thr Glu Leu Arg Val Arg Glu Ser Asp Glu Glu Thr Gln
              4040              4045              4050
35
          Ile Lys Val Asn Trp Glu Glu Glu Ala Ala Ser Gly Leu Leu Thr
              4055              4060              4065

40        Ser Leu Lys Asp Asn Val Pro Lys Ala Thr Gly Val Leu Tyr Asp
              4070              4075              4080

          Tyr Val Asn Lys Tyr His Trp Glu His Thr Gly Leu Thr Leu Arg
45            4085              4090              4095

          Glu Val Ser Ser Lys Leu Arg Arg Asn Leu Gln Asn Asn Ala Glu
              4100              4105              4110
50
          Trp Val Tyr Gln Gly Ala Ile Arg Gln Ile Asp Asp Ile Asp Val
              4115              4120              4125
55
          Arg Phe Gln Lys Ala Ala Ser Gly Thr Thr Gly Thr Tyr Gln Glu
              4130              4135              4140

60        Trp Lys Asp Lys Ala Gln Asn Leu Tyr Gln Glu Leu Leu Thr Gln
              4145              4150              4155

          Glu Gly Gln Ala Ser Phe Gln Gly Leu Lys Asp Asn Val Phe Asp
65            4160              4165              4170

          Gly Leu Val Arg Val Thr Gln Lys Phe His Met Lys Val Lys His
              4175              4180              4185
70
```

```
        Leu Ile  Asp Ser Leu Ile Asp  Phe Leu Asn Phe Pro  Arg Phe Gln
            4190             4195             4200

5

        Phe Pro  Gly Lys Pro Gly Ile  Tyr Thr Arg Glu Glu  Leu Cys Thr
            4205             4210             4215

10      Met Phe  Ile Arg Glu Val Gly  Thr Val Leu Ser Gln  Val Tyr Ser
            4220             4225             4230

        Lys Val  His Asn Gly Ser Glu  Ile Leu Phe Ser Tyr  Phe Gln Asp
15          4235             4240             4245

        Leu Val  Ile Thr Leu Pro Phe  Glu Leu Arg Lys His  Lys Leu Ile
            4250             4255             4260

20

        Asp Val  Ile Ser Met Tyr Arg  Glu Leu Leu Lys Asp  Leu Ser Lys
            4265             4270             4275

25

        Glu Ala  Gln Glu Val Phe Lys  Ala Ile Gln Ser Leu  Lys Thr Thr
            4280             4285             4290

30      Glu Val  Leu Arg Asn Leu Gln  Asp Leu Leu Gln Phe  Ile Phe Gln
            4295             4300             4305

35      Leu Ile  Glu Asp Asn Ile Lys  Gln Leu Lys Glu Met  Lys Phe Thr
            4310             4315             4320

        Tyr Leu  Ile Asn Tyr Ile Gln  Asp Glu Ile Asn Thr  Ile Phe Asn
            4325             4330             4335

40

        Asp Tyr  Ile Pro Tyr Val Phe  Lys Leu Leu Lys Glu  Asn Leu Cys
            4340             4345             4350

45

        Leu Asn  Leu His Lys Phe Asn  Glu Phe Ile Gln Asn  Glu Leu Gln
            4355             4360             4365

50      Glu Ala  Ser Gln Glu Leu Gln  Gln Ile His Gln Tyr  Ile Met Ala
            4370             4375             4380

        Leu Arg  Glu Glu Tyr Phe Asp  Pro Ser Ile Val Gly  Trp Thr Val
55          4385             4390             4395

        Lys Tyr  Tyr Glu Leu Glu Glu  Lys Ile Val Ser Leu  Ile Lys Asn
            4400             4405             4410

60

        Leu Leu  Val Ala Leu Lys Asp  Phe His Ser Glu Tyr  Ile Val Ser
            4415             4420             4425

65

        Ala Ser  Asn Phe Thr Ser Gln  Leu Ser Ser Gln Val  Glu Gln Phe
            4430             4435             4440

70      Leu His  Arg Asn Ile Gln Glu  Tyr Leu Ser Ile Leu  Thr Asp Pro
```

```
        4445                    4450                    4455

   Asp Gly Lys Gly Lys Glu Lys Ile Ala Glu Leu Ser Ala Thr Ala
       4460            4465            4470


   Gln Glu Ile Ile Lys Ser Gln Ala Ile Ala Thr Lys Lys Ile Ile
       4475            4480            4485


   Ser Asp Tyr His Gln Gln Phe Arg Tyr Lys Leu Gln Asp Phe Ser
       4490            4495            4500


   Asp Gln Leu Ser Asp Tyr Tyr Glu Lys Phe Ile Ala Glu Ser Lys
       4505            4510            4515


   Arg Leu Ile Asp Leu Ser Ile Gln Asn Tyr His Thr Phe Leu Ile
       4520            4525            4530


   Tyr Ile Thr Glu Leu Leu Lys Lys Leu Gln Ser Thr Thr Val Met
       4535            4540            4545


   Asn Pro Tyr Met Lys Leu Ala Pro Gly Glu Leu Thr Ile Ile Leu
       4550            4555            4560


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   Met Lys Pro Pro Arg Pro Val Arg Thr Cys Ser Lys Val Leu Val Leu
   1               5               10              15


   Leu Ser Leu Leu Ala Ile His Gln Thr Thr Thr Ala Glu Lys Asn Gly
               20              25              30


   Ile Asp Ile Tyr Ser Leu Thr Val Asp Ser Arg Val Ser Ser Arg Phe
           35              40              45


   Ala His Thr Val Val Thr Ser Arg Val Val Asn Arg Ala Asn Thr Val
           50              55              60


   Gln Glu Ala Thr Phe Gln Met Glu Leu Pro Lys Lys Ala Phe Ile Thr
   65              70              75              80


   Asn Phe Ser Met Asn Ile Asp Gly Met Thr Tyr Pro Gly Ile Ile Lys
                   85              90              95


   Glu Lys Ala Glu Ala Gln Ala Gln Tyr Ser Ala Ala Val Ala Lys Gly
               100             105             110
```

Lys Ser Ala Gly Leu Val Lys Ala Thr Gly Arg Asn Met Glu Gln Phe
        115   120   125

Gln Val Ser Val Ser Val Ala Pro Asn Ala Lys Ile Thr Phe Glu Leu
        130   135   140

Val Tyr Glu Glu Leu Leu Lys Arg Arg Leu Gly Val Tyr Glu Leu Leu
145   150   155   160

Leu Lys Val Arg Pro Gln Gln Leu Val Lys His Leu Gln Met Asp Ile
                165   170   175

His Ile Phe Glu Pro Gln Gly Ile Ser Phe Leu Glu Thr Glu Ser Thr
            180   185   190

Phe Met Thr Asn Gln Leu Val Asp Ala Leu Thr Thr Trp Gln Asn Lys
            195   200   205

Thr Lys Ala His Ile Arg Phe Lys Pro Thr Leu Ser Gln Gln Gln Lys
        210   215   220

Ser Pro Glu Gln Gln Glu Thr Val Leu Asp Gly Asn Leu Ile Ile Arg
225   230   235   240

Tyr Asp Val Asp Arg Ala Ile Ser Gly Gly Ser Ile Gln Ile Glu Asn
                245   250   255

Gly Tyr Phe Val His Tyr Phe Ala Pro Glu Gly Leu Thr Thr Met Pro
            260   265   270

Lys Asn Val Val Phe Val Ile Asp Lys Ser Gly Ser Met Ser Gly Arg
        275   280   285

Lys Ile Gln Gln Thr Arg Glu Ala Leu Ile Lys Ile Leu Asp Asp Leu
        290   295   300

Ser Pro Arg Asp Gln Phe Asn Leu Ile Val Phe Ser Thr Glu Ala Thr
305   310   315   320

Gln Trp Arg Pro Ser Leu Val Pro Ala Ser Ala Glu Asn Val Asn Lys
                325   330   335

Ala Arg Ser Phe Ala Ala Gly Ile Gln Ala Leu Gly Gly Thr Asn Ile
            340   345   350

Asn Asp Ala Met Leu Met Ala Val Gln Leu Leu Asp Ser Ser Asn Gln
            355   360   365

Glu Glu Arg Leu Pro Glu Gly Ser Val Ser Leu Ile Ile Leu Leu Thr
        370   375   380

Asp Gly Asp Pro Thr Val Gly Glu Thr Asn Pro Arg Ser Ile Gln Asn

```
        385                    390                    395                    400

        Asn Val Arg Glu Ala Val Ser Gly Arg Tyr Ser Leu Phe Cys Leu Gly
 5                      405                410                415

        Phe Gly Phe Asp Val Ser Tyr Ala Phe Leu Glu Lys Leu Ala Leu Asp
10                      420                425                430

        Asn Gly Gly Leu Ala Arg Arg Ile His Glu Asp Ser Asp Ser Ala Leu
                        435                440                445
15
        Gln Leu Gln Asp Phe Tyr Gln Glu Val Ala Asn Pro Leu Leu Thr Ala
                        450                455                460

20      Val Thr Phe Glu Tyr Pro Ser Asn Ala Val Glu Glu Val Thr Gln Asn
        465                470                475                480

        Asn Phe Arg Leu Leu Phe Lys Gly Ser Glu Met Val Val Ala Gly Lys
25                      485                490                495

        Leu Gln Asp Arg Gly Pro Asp Val Leu Thr Ala Thr Val Ser Gly Lys
                        500                505                510
30
        Leu Pro Thr Gln Asn Ile Thr Phe Gln Thr Glu Ser Ser Val Ala Glu
                        515                520                525

35      Gln Glu Ala Glu Phe Gln Ser Pro Lys Tyr Ile Phe His Asn Phe Met
                        530                535                540

        Glu Arg Leu Trp Ala Tyr Leu Thr Ile Gln Gln Leu Leu Glu Gln Thr
40      545                550                555                560

        Val Ser Ala Ser Asp Ala Asp Gln Gln Ala Leu Arg Asn Gln Ala Leu
45                      565                570                575

        Asn Leu Ser Leu Ala Tyr Ser Phe Val Thr Pro Leu Thr Ser Met Val
                        580                585                590
50
        Val Thr Lys Pro Asp Asp Gln Glu Gln Ser Gln Val Ala Glu Lys Pro
                        595                600                605

55      Met Glu Gly Glu Ser Arg Asn Arg Asn Val His Ser Gly Ser Thr Phe
                        610                615                620

        Phe Lys Tyr Tyr Leu Gln Gly Ala Lys Ile Pro Lys Pro Glu Ala Ser
60      625                630                635                640

        Phe Ser Pro Arg Arg Gly Trp Asn Arg Gln Ala Gly Ala Ala Gly Ser
65                      645                650                655

        Arg Met Asn Phe Arg Pro Gly Val Leu Ser Ser Arg Gln Leu Gly Leu
                        660                665                670
70
```

```
      Pro Gly Pro Pro Asp Val Pro Asp His Ala Ala Tyr His Pro Phe Arg
          675             680             685

      Arg Leu Ala Ile Leu Pro Ala Ser Ala Pro Pro Ala Thr Ser Asn Pro
          690             695             700

      Asp Pro Ala Val Ser Arg Val Met Asn Met Lys Ile Glu Glu Thr Thr
      705             710             715             720

      Met Thr Thr Gln Thr Pro Ala Pro Ile Gln Ala Pro Ser Ala Ile Leu
                      725             730             735

      Pro Leu Pro Gly Gln Ser Val Glu Arg Leu Cys Val Asp Pro Arg His
                  740             745             750

      Arg Gln Gly Pro Val Asn Leu Leu Ser Asp Pro Glu Gln Gly Val Glu
                  755             760             765

      Val Thr Gly Gln Tyr Glu Arg Glu Lys Ala Gly Phe Ser Trp Ile Glu
          770             775             780

      Val Thr Phe Lys Asn Pro Leu Val Trp Val His Ala Ser Pro Glu His
      785             790             795             800

      Val Val Val Thr Arg Asn Arg Arg Ser Ser Ala Tyr Lys Trp Lys Glu
                      805             810             815

      Thr Leu Phe Ser Val Met Pro Gly Leu Lys Met Thr Met Asp Lys Thr
                  820             825             830

      Gly Leu Leu Leu Leu Ser Asp Pro Asp Lys Val Thr Ile Gly Leu Leu
                  835             840             845

      Phe Trp Asp Gly Arg Gly Glu Gly Leu Arg Leu Leu Leu Arg Asp Thr
          850             855             860

      Asp Arg Phe Ser Ser His Val Gly Gly Thr Leu Gly Gln Phe Tyr Gln
      865             870             875             880

      Glu Val Leu Trp Gly Ser Pro Ala Ala Ser Asp Asp Gly Arg Arg Thr
                      885             890             895

      Leu Arg Val Gln Gly Asn Asp His Ser Ala Thr Arg Glu Arg Arg Leu
                  900             905             910

      Asp Tyr Gln Glu Gly Pro Pro Gly Val Glu Ile Ser Cys Trp Ser Val
          915             920             925

      Glu Leu
          930


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Met Arg Leu Leu Trp Gly Leu Ile Trp Ala Ser Ser Phe Phe Thr Leu
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Ser Leu Gln Lys Pro Arg Leu Leu Leu Phe Ser Pro Ser Val Val His
                20                  25                  30


Leu Gly Val Pro Leu Ser Val Gly Val Gln Leu Gln Asp Val Pro Arg
            35                  40                  45


Gly Gln Val Val Lys Gly Ser Val Phe Leu Arg Asn Pro Ser Arg Asn
        50                  55                  60


Asn Val Pro Cys Ser Pro Lys Val Asp Phe Thr Leu Ser Ser Glu Arg
65                  70                  75                  80


Asp Phe Ala Leu Leu Ser Leu Gln Val Pro Leu Lys Asp Ala Lys Ser
                85                  90                  95


Cys Gly Leu His Gln Leu Leu Arg Gly Pro Glu Val Gln Leu Val Ala
                100                 105                 110


His Ser Pro Trp Leu Lys Asp Ser Leu Ser Arg Thr Thr Asn Ile Gln
            115                 120                 125


Gly Ile Asn Leu Leu Phe Ser Ser Arg Arg Gly His Leu Phe Leu Gln
        130                 135                 140


Thr Asp Gln Pro Ile Tyr Asn Pro Gly Gln Arg Val Arg Tyr Arg Val
145                 150                 155                 160


Phe Ala Leu Asp Gln Lys Met Arg Pro Ser Thr Asp Thr Ile Thr Val
                165                 170                 175


Met Val Glu Asn Ser His Gly Leu Arg Val Arg Lys Lys Glu Val Tyr
                180                 185                 190


Met Pro Ser Ser Ile Phe Gln Asp Asp Phe Val Ile Pro Asp Ile Ser
            195                 200                 205


Glu Pro Gly Thr Trp Lys Ile Ser Ala Arg Phe Ser Asp Gly Leu Glu
            210                 215                 220


Ser Asn Ser Ser Thr Gln Phe Glu Val Lys Lys Tyr Val Leu Pro Asn
225                 230                 235                 240
```

Phe Glu Val Lys Ile Thr Pro Gly Lys Pro Tyr Ile Leu Thr Val Pro
                     245   250   255

Gly His Leu Asp Glu Met Gln Leu Asp Ile Gln Ala Arg Tyr Ile Tyr
                 260   265   270

Gly Lys Pro Val Gln Gly Val Ala Tyr Val Arg Phe Gly Leu Leu Asp
             275   280   285

Glu Asp Gly Lys Lys Thr Phe Phe Arg Gly Leu Glu Ser Gln Thr Lys
         290   295   300

Leu Val Asn Gly Gln Ser His Ile Ser Leu Ser Lys Ala Glu Phe Gln
305   310   315   320

Asp Ala Leu Glu Lys Leu Asn Met Gly Ile Thr Asp Leu Gln Gly Leu
             325   330   335

Arg Leu Tyr Val Ala Ala Ala Ile Ile Glu Ser Pro Gly Gly Glu Met
             340   345   350

Glu Glu Ala Glu Leu Thr Ser Trp Tyr Phe Val Ser Ser Pro Phe Ser
         355   360   365

Leu Asp Leu Ser Lys Thr Lys Arg His Leu Val Pro Gly Ala Pro Phe
     370   375   380

Leu Leu Gln Ala Leu Val Arg Glu Met Ser Gly Ser Pro Ala Ser Gly
385   390   395   400

Ile Pro Val Lys Val Ser Ala Thr Val Ser Ser Pro Gly Ser Val Pro
                 405   410   415

Glu Val Gln Asp Ile Gln Gln Asn Thr Asp Gly Ser Gly Gln Val Ser
             420   425   430

Ile Pro Ile Ile Ile Pro Gln Thr Ile Ser Glu Leu Gln Leu Ser Val
         435   440   445

Ser Ala Gly Ser Pro His Pro Ala Ile Ala Arg Leu Thr Val Ala Ala
     450   455   460

Pro Pro Ser Gly Gly Pro Gly Phe Leu Ser Ile Glu Arg Pro Asp Ser
465   470   475   480

Arg Pro Pro Arg Val Gly Asp Thr Leu Asn Leu Asn Leu Arg Ala Val
             485   490   495

Gly Ser Gly Ala Thr Phe Ser His Tyr Tyr Tyr Met Ile Leu Ser Arg
         500   505   510

Gly Gln Ile Val Phe Met Asn Arg Glu Pro Lys Arg Thr Leu Thr Ser

<pre>
              515   520   525

 5   Val Ser Val Phe Val Asp His His Leu Ala Pro Ser Phe Tyr Phe Val
          530   535   540

10   Ala Phe Tyr Tyr His Gly Asp His Pro Val Ala Asn Ser Leu Arg Val
      545   550   555   560

      Asp Val Gln Ala Gly Ala Cys Glu Gly Lys Leu Glu Leu Ser Val Asp
                      565   570   575

15   Gly Ala Lys Gln Tyr Arg Asn Gly Glu Ser Val Lys Leu His Leu Glu
                  580   585   590

20   Thr Asp Ser Leu Ala Leu Val Ala Leu Gly Ala Leu Asp Thr Ala Leu
              595   600   605

25   Tyr Ala Ala Gly Ser Lys Ser His Lys Pro Leu Asn Met Gly Lys Val
          610   615   620

      Phe Glu Ala Met Asn Ser Tyr Asp Leu Gly Cys Gly Pro Gly Gly Gly
30   625   630   635   640

      Asp Ser Ala Leu Gln Val Phe Gln Ala Ala Gly Leu Ala Phe Ser Asp
                      645   650   655

35   Gly Asp Gln Trp Thr Leu Ser Arg Lys Arg Leu Ser Cys Pro Lys Glu
                  660   665   670

40   Lys Thr Thr Arg Lys Lys Arg Asn Val Asn Phe Gln Lys Ala Ile Asn
              675   680   685

45   Glu Lys Leu Gly Gln Tyr Ala Ser Pro Thr Ala Lys Arg Cys Cys Gln
          690   695   700

      Asp Gly Val Thr Arg Leu Pro Met Met Arg Ser Cys Glu Gln Arg Ala
50   705   710   715   720

      Ala Arg Val Gln Gln Pro Asp Cys Arg Glu Pro Phe Leu Ser Cys Cys
                      725   730   735

55   Gln Phe Ala Glu Ser Leu Arg Lys Lys Ser Arg Asp Lys Gly Gln Ala
                  740   745   750

60   Gly Leu Gln Arg Ala Leu Glu Ile Leu Gln Glu Glu Asp Leu Ile Asp
                  755   760   765

65   Glu Asp Asp Ile Pro Val Arg Ser Phe Phe Pro Glu Asn Trp Leu Trp
              770   775   780

      Arg Val Glu Thr Val Asp Arg Phe Gln Ile Leu Thr Leu Trp Leu Pro
70   785   790   795   800
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Asp Ser Leu Thr Thr Trp Glu Ile His Gly Leu Ser Leu Ser Lys Thr
                    805   810   815

5

Lys Gly Leu Cys Val Ala Thr Pro Val Gln Leu Arg Val Phe Arg Glu
              820   825   830

10

Phe His Leu His Leu Arg Leu Pro Met Ser Val Arg Arg Phe Glu Gln
          835   840   845

Leu Glu Leu Arg Pro Val Leu Tyr Asn Tyr Leu Asp Lys Asn Leu Thr
    850   855   860

15

Val Ser Val His Val Ser Pro Val Glu Gly Leu Cys Leu Ala Gly Gly
865   870   875   880

20

Gly Gly Leu Ala Gln Gln Val Leu Val Pro Ala Gly Ser Ala Arg Pro
              885   890   895

25

Val Ala Phe Ser Val Val Pro Thr Ala Ala Ala Val Ser Leu Lys
              900   905   910

30

Val Val Ala Arg Gly Ser Phe Glu Phe Pro Val Gly Asp Ala Val Ser
          915   920   925

Lys Val Leu Gln Ile Glu Lys Glu Gly Ala Ile His Arg Glu Glu Leu
    930   935   940

35

Val Tyr Glu Leu Asn Pro Leu Asp His Arg Gly Arg Thr Leu Glu Ile
945   950   955   960

40

Pro Gly Asn Ser Asp Pro Asn Met Ile Pro Asp Gly Asp Phe Asn Ser
              965   970   975

45

Tyr Val Arg Val Thr Ala Ser Asp Pro Leu Asp Thr Leu Gly Ser Glu
          980   985   990

50

Gly Ala Leu Ser Pro Gly Gly Val Ala Ser Leu Leu Arg Leu Pro Arg
        995   1000   1005

55

Gly Cys Gly Glu Gln Thr Met Ile Tyr Leu Ala Pro Thr Leu Ala
    1010   1015   1020

60

Ala Ser Arg Tyr Leu Asp Lys Thr Glu Gln Trp Ser Thr Leu Pro
    1025   1030   1035

Pro Glu Thr Lys Asp His Ala Val Asp Leu Ile Gln Lys Gly Tyr
    1040   1045   1050

65

Met Arg Ile Gln Gln Phe Arg Lys Ala Asp Gly Ser Tyr Ala Ala
    1055   1060   1065

70

Trp Leu Ser Arg Asp Ser Ser Thr Trp Leu Thr Ala Phe Val Leu

```
                    1070                    1075                      1080

         Lys Val  Leu Ser Leu Ala Gln  Glu Gln Val Gly Gly  Ser Pro Glu
   5          1085                    1090              1095


         Lys Leu  Gln Glu Thr Ser Asn  Trp Leu Leu Ser Gln  Gln Gln Ala
  10          1100                    1105              1110


         Asp Gly  Ser Phe Gln Asp Pro  Cys Pro Val Leu Asp  Arg Ser Met
              1115                    1120              1125

  15
         Gln Gly  Gly Leu Val Gly Asn  Asp Glu Thr Val Ala  Leu Thr Ala
              1130                    1135              1140

  20
         Phe Val  Thr Ile Ala Leu His  His Gly Leu Ala Val  Phe Gln Asp
              1145                    1150              1155


         Glu Gly  Ala Glu Pro Leu Lys  Gln Arg Val Glu Ala  Ser Ile Ser
  25          1160                    1165              1170


         Lys Ala  Asn Ser Phe Leu Gly  Glu Lys Ala Ser Ala  Gly Leu Leu
              1175                    1180              1185

  30
         Gly Ala  His Ala Ala Ala Ile  Thr Ala Tyr Ala Leu  Ser Leu Thr
              1190                    1195              1200

  35
         Lys Ala  Pro Val Asp Leu Leu  Gly Val Ala His Asn  Asn Leu Met
              1205                    1210              1215


  40     Ala Met  Ala Gln Glu Thr Gly  Asp Asn Leu Tyr Trp  Gly Ser Val
              1220                    1225              1230


         Thr Gly  Ser Gln Ser Asn Ala  Val Ser Pro Thr Pro  Ala Pro Arg
  45          1235                    1240              1245


         Asn Pro  Ser Asp Pro Met Pro  Gln Ala Pro Ala Leu  Trp Ile Glu
              1250                    1255              1260

  50
         Thr Thr  Ala Tyr Ala Leu Leu  His Leu Leu Leu His  Glu Gly Lys
              1265                    1270              1275

  55
         Ala Glu  Met Ala Asp Gln Ala  Ser Ala Trp Leu Thr  Arg Gln Gly
              1280                    1285              1290


  60     Ser Phe  Gln Gly Gly Phe Arg  Ser Thr Gln Asp Thr  Val Ile Ala
              1295                    1300              1305


         Leu Asp  Ala Leu Ser Ala Tyr  Trp Ile Ala Ser His  Thr Thr Glu
  65          1310                    1315              1320


         Glu Arg  Gly Leu Asn Val Thr  Leu Ser Ser Thr Gly  Arg Asn Gly
              1325                    1330              1335
  70
```

```
        Phe Lys  Ser His Ala Leu Gln  Leu Asn Asn Arg Gln  Ile Arg Gly
            1340                1345                1350

 5
        Leu Glu  Glu Glu Leu Gln Phe  Ser Leu Gly Ser Lys  Ile Asn Val
            1355                1360                1365

10      Lys Val  Gly Gly Asn Ser Lys  Gly Thr Leu Lys Val  Leu Arg Thr
            1370                1375                1380

15      Tyr Asn  Val Leu Asp Met Lys  Asn Thr Thr Cys Gln  Asp Leu Gln
            1385                1390                1395

20      Ile Glu  Val Thr Val Lys Gly  His Val Glu Tyr Thr  Met Glu Ala
            1400                1405                1410

        Asn Glu  Asp Tyr Glu Asp Tyr  Glu Tyr Asp Glu Leu  Pro Ala Lys
            1415                1420                1425

25      Asp Asp  Pro Asp Ala Pro Leu  Gln Pro Val Thr Pro  Leu Gln Leu
            1430                1435                1440

30      Phe Glu  Gly Arg Arg Asn Arg  Arg Arg Arg Glu Ala  Pro Lys Val
            1445                1450                1455

35      Val Glu  Glu Gln Glu Ser Arg  Val His Tyr Thr Val  Cys Ile Trp
            1460                1465                1470

        Arg Asn  Gly Lys Val Gly Leu  Ser Gly Met Ala Ile  Ala Asp Val
            1475                1480                1485

40      Thr Leu  Leu Ser Gly Phe His  Ala Leu Arg Ala Asp  Leu Glu Lys
            1490                1495                1500

45      Leu Thr  Ser Leu Ser Asp Arg  Tyr Val Ser His Phe  Glu Thr Glu
            1505                1510                1515

50      Gly Pro  His Val Leu Leu Tyr  Phe Asp Ser Val Pro  Thr Ser Arg
            1520                1525                1530

55      Glu Cys  Val Gly Phe Glu Ala  Val Gln Glu Val Pro  Val Gly Leu
            1535                1540                1545

        Val Gln  Pro Ala Ser Ala Thr  Leu Tyr Asp Tyr Tyr  Asn Pro Glu
            1550                1555                1560

60      Arg Arg  Cys Ser Val Phe Tyr  Gly Ala Pro Ser Lys  Ser Arg Leu
            1565                1570                1575

65      Leu Ala  Thr Leu Cys Ser Ala  Glu Val Cys Gln Cys  Ala Glu Gly
            1580                1585                1590

70      Lys Cys  Pro Arg Gln Arg Arg  Ala Leu Glu Arg Gly  Leu Gln Asp
```

                1595   1600   1605

5   Glu Asp Gly Tyr Arg Met Lys Phe Ala Cys Tyr Tyr Pro Arg Val
            1610   1615   1620

        Glu Tyr Gly Phe Gln Val Lys Val Leu Arg Glu Asp Ser Arg Ala
10   1625   1630   1635

        Ala Phe Arg Leu Phe Glu Thr Lys Ile Thr Gln Val Leu His Phe
            1640   1645   1650

15   Thr Lys Asp Val Lys Ala Ala Ala Asn Gln Met Arg Asn Phe Leu
            1655   1660   1665

20   Val Arg Ala Ser Cys Arg Leu Arg Leu Glu Pro Gly Lys Glu Tyr
            1670   1675   1680

25   Leu Ile Met Gly Leu Asp Gly Ala Thr Tyr Asp Leu Glu Gly His
            1685   1690   1695

        Pro Gln Tyr Leu Leu Asp Ser Asn Ser Trp Ile Glu Glu Met Pro
30   1700   1705   1710

        Ser Glu Arg Leu Cys Arg Ser Thr Arg Gln Arg Ala Ala Cys Ala
35   1715   1720   1725

        Gln Leu Asn Asp Phe Leu Gln Glu Tyr Gly Thr Gln Gly Cys Gln
            1730   1735   1740

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60   Leu Pro Leu Ala Leu Gly Ser Pro Met Tyr Ser Ile Ile Thr Pro Asn
                        20   25   30

        Ile Leu Arg Leu Glu Ser Glu Glu Thr Met Val Leu Glu Ala His Asp
65   35   40   45

        Ala Gln Gly Asp Val Pro Val Thr Val Thr Val His Asp Phe Pro Gly
            50   55   60
70

Lys Lys Leu Val Leu Ser Ser Glu Lys Thr Val Leu Thr Pro Ala Thr
65   70   75   80

5

Asn His Met Gly Asn Val Thr Phe Thr Ile Pro Ala Asn Arg Glu Phe
                85   90   95

10   Lys Ser Glu Lys Gly Arg Asn Lys Phe Val Thr Val Gln Ala Thr Phe
                    100   105   110

15   Gly Thr Gln Val Val Glu Lys Val Val Leu Val Ser Leu Gln Ser Gly
                115   120   125

        Tyr Leu Phe Ile Gln Thr Asp Lys Thr Ile Tyr Thr Pro Gly Ser Thr
            130   135   140

20

        Val Leu Tyr Arg Ile Phe Thr Val Asn His Lys Leu Leu Pro Val Gly
        145   150   155   160

25

        Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly Ile Pro Val Lys
                        165   170   175

30   Gln Asp Ser Leu Ser Ser Gln Asn Gln Leu Gly Val Leu Pro Leu Ser
                    180   185   190

        Trp Asp Ile Pro Glu Leu Val Asn Met Gly Gln Trp Lys Ile Arg Ala
35   195   200   205

        Tyr Tyr Glu Asn Ser Pro Gln Gln Val Phe Ser Thr Glu Phe Glu Val
            210   215   220

40

        Lys Glu Tyr Val Leu Pro Ser Phe Glu Val Ile Val Glu Pro Thr Glu
        225   230   235   240

45

        Lys Phe Tyr Tyr Ile Tyr Asn Glu Lys Gly Leu Glu Val Thr Ile Thr
                        245   250   255

50   Ala Arg Phe Leu Tyr Gly Lys Lys Val Glu Gly Thr Ala Phe Val Ile
                    260   265   270

        Phe Gly Ile Gln Asp Gly Glu Gln Arg Ile Ser Leu Pro Glu Ser Leu
55   275   280   285

        Lys Arg Ile Pro Ile Glu Asp Gly Ser Gly Glu Val Val Leu Ser Arg
            290   295   300

60

        Lys Val Leu Leu Asp Gly Val Gln Asn Leu Arg Ala Glu Asp Leu Val
        305   310   315   320

65

        Gly Lys Ser Leu Tyr Val Ser Ala Thr Val Ile Leu His Ser Gly Ser
                        325   330   335

70   Asp Met Val Gln Ala Glu Arg Ser Gly Ile Pro Ile Val Thr Ser Pro

```
                    340                     345                     350

      Tyr Gln Ile His Phe Thr Lys Thr Pro Lys Tyr Phe Lys Pro Gly Met
 5            355                 360                 365

      Pro Phe Asp Leu Met Val Phe Val Thr Asn Pro Asp Gly Ser Pro Ala
             370             375                 380
10

      Tyr Arg Val Pro Val Ala Val Gln Gly Glu Asp Thr Val Gln Ser Leu
      385                 390                 395                 400
15
      Thr Gln Gly Asp Gly Val Ala Lys Leu Ser Ile Asn Thr His Pro Ser
                    405                 410                 415
20
      Gln Lys Pro Leu Ser Ile Thr Val Arg Thr Lys Lys Gln Glu Leu Ser
                    420                 425                 430

      Glu Ala Glu Gln Ala Thr Arg Thr Met Gln Ala Leu Pro Tyr Ser Thr
25            435                 440                 445

      Val Gly Asn Ser Asn Asn Tyr Leu His Leu Ser Val Leu Arg Thr Glu
             450                 455                 460
30
      Leu Arg Pro Gly Glu Thr Leu Asn Val Asn Phe Leu Leu Arg Met Asp
      465                 470                 475                 480
35
      Arg Ala His Glu Ala Lys Ile Arg Tyr Tyr Thr Tyr Leu Ile Met Asn
                    485                 490                 495

      Lys Gly Arg Leu Leu Lys Ala Gly Arg Gln Val Arg Glu Pro Gly Gln
40                  500                 505                 510

      Asp Leu Val Val Leu Pro Leu Ser Ile Thr Thr Asp Phe Ile Pro Ser
45           515                 520                 525

      Phe Arg Leu Val Ala Tyr Tyr Thr Leu Ile Gly Ala Ser Gly Gln Arg
             530                 535                 540
50
      Glu Val Val Ala Asp Ser Val Trp Val Asp Val Lys Asp Ser Cys Val
      545                 550                 555                 560
55
      Gly Ser Leu Val Val Lys Ser Gly Gln Ser Glu Asp Arg Gln Pro Val
                    565                 570                 575

      Pro Gly Gln Gln Met Thr Leu Lys Ile Glu Gly Asp His Gly Ala Arg
60                  580                 585                 590

      Val Val Leu Val Ala Val Asp Lys Gly Val Phe Val Leu Asn Lys Lys
65           595                 600                 605

      Asn Lys Leu Thr Gln Ser Lys Ile Trp Asp Val Val Glu Lys Ala Asp
             610                 615                 620
70
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```
        Ile Gly Cys Thr Pro Gly Ser Gly Lys Asp Tyr Ala Gly Val Phe Ser
        625             630             635                 640

    5
        Asp Ala Gly Leu Thr Phe Thr Ser Ser Gly Gln Gln Thr Ala Gln
                    645             650             655

   10
        Arg Ala Glu Leu Gln Cys Pro Gln Pro Ala Ala Arg Arg Arg Arg Ser
                    660             665             670

   15
        Val Gln Leu Thr Glu Lys Arg Met Asp Lys Val Gly Lys Tyr Pro Lys
                675             680             685

        Glu Leu Arg Lys Cys Cys Glu Asp Gly Met Arg Glu Asn Pro Met Arg
                690             695             700

   20
        Phe Ser Cys Gln Arg Arg Thr Arg Phe Ile Ser Leu Gly Glu Ala Cys
        705             710             715                 720

   25
        Lys Lys Val Phe Leu Asp Cys Cys Asn Tyr Ile Thr Glu Leu Arg Arg
                    725             730             735

   30
        Gln His Ala Arg Ala Ser His Leu Gly Leu Ala Arg Ser Asn Leu Asp
                    740             745             750

        Glu Asp Ile Ile Ala Glu Glu Asn Ile Val Ser Arg Ser Glu Phe Pro
                    755             760             765

   35
        Glu Ser Trp Leu Trp Asn Val Glu Asp Leu Lys Glu Pro Pro Lys Asn
            770             775             780

   40
        Gly Ile Ser Thr Lys Leu Met Asn Ile Phe Leu Lys Asp Ser Ile Thr
        785             790             795                 800

   45
        Thr Trp Glu Ile Leu Ala Val Ser Met Ser Asp Lys Lys Gly Ile Cys
                    805             810             815

   50
        Val Ala Asp Pro Phe Glu Val Thr Val Met Gln Asp Phe Phe Ile Asp
                    820             825             830

        Leu Arg Leu Pro Tyr Ser Val Val Arg Asn Glu Gln Val Glu Ile Arg
                    835             840             845

   55
        Ala Val Leu Tyr Asn Tyr Arg Gln Asn Gln Glu Leu Lys Val Arg Val
                850             855             860

   60
        Glu Leu Leu His Asn Pro Ala Phe Cys Ser Leu Ala Thr Thr Lys Arg
        865             870             875                 880

   65
        Arg His Gln Gln Thr Val Thr Ile Pro Pro Lys Ser Ser Leu Ser Val
                    885             890             895

   70
         Pro Tyr Val Ile Val Pro Leu Lys Thr Gly Leu Gln Glu Val Glu Val
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Lys Ala Ala Val Tyr His His Phe Ile Ser Asp Gly Val Arg Lys Ser
        915   920   925

Leu Lys Val Val Pro Glu Gly Ile Arg Met Asn Lys Thr Val Ala Val
        930   935   940

Arg Thr Leu Asp Pro Glu Arg Leu Gly Arg Glu Gly Val Gln Lys Glu
945   950   955   960

Asp Ile Pro Pro Ala Asp Leu Ser Asp Gln Val Pro Asp Thr Glu Ser
                965   970   975

Glu Thr Arg Ile Leu Leu Gln Gly Thr Pro Val Ala Gln Met Thr Glu
                980   985   990

Asp Ala Val Asp Ala Glu Arg Leu Lys His Leu Ile Val Thr Pro Ser
                995   1000   1005

Gly Cys Gly Glu Gln Asn Met Ile Gly Met Thr Pro Thr Val Ile
        1010   1015   1020

Ala Val His Tyr Leu Asp Glu Thr Glu Gln Trp Glu Lys Phe Gly
        1025   1030   1035

Leu Glu Lys Arg Gln Gly Ala Leu Glu Leu Ile Lys Lys Gly Tyr
        1040   1045   1050

Thr Gln Gln Leu Ala Phe Arg Gln Pro Ser Ser Ala Phe Ala Ala
        1055   1060   1065

Phe Val Lys Arg Ala Pro Ser Thr Trp Leu Thr Ala Tyr Val Val
        1070   1075   1080

Lys Val Phe Ser Leu Ala Val Asn Leu Ile Ala Ile Asp Ser Gln
        1085   1090   1095

Val Leu Cys Gly Ala Val Lys Trp Leu Ile Leu Glu Lys Gln Lys
        1100   1105   1110

Pro Asp Gly Val Phe Gln Glu Asp Ala Pro Val Ile His Gln Glu
        1115   1120   1125

Met Ile Gly Gly Leu Arg Asn Asn Asn Glu Lys Asp Met Ala Leu
        1130   1135   1140

Thr Ala Phe Val Leu Ile Ser Leu Gln Glu Ala Lys Asp Ile Cys
        1145   1150   1155

Glu Glu Gln Val Asn Ser Leu Pro Gly Ser Ile Thr Lys Ala Gly
        1160   1165   1170

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          Asp Phe  Leu Glu Ala Asn Tyr  Met Asn Leu Gln Arg  Ser Tyr Thr
              1175                 1180                 1185

  5
          Val Ala  Ile Ala Gly Tyr Ala  Leu Ala Gln Met Gly  Arg Leu Lys
              1190                 1195                 1200

 10
          Gly Pro  Leu Leu Asn Lys Phe  Leu Thr Thr Ala Lys  Asp Lys Asn
              1205                 1210                 1215

 15
          Arg Trp  Glu Asp Pro Gly Lys  Gln Leu Tyr Asn Val  Glu Ala Thr
              1220                 1225                 1230


          Ser Tyr  Ala Leu Leu Ala Leu  Leu Gln Leu Lys Asp  Phe Asp Phe
              1235                 1240                 1245
 20

          Val Pro  Pro Val Val Arg Trp  Leu Asn Glu Gln Arg  Tyr Tyr Gly
              1250                 1255                 1260
 25
          Gly Gly  Tyr Gly Ser Thr Gln  Ala Thr Phe Met Val  Phe Gln Ala
              1265                 1270                 1275

 30
          Leu Ala  Gln Tyr Gln Lys Asp  Ala Pro Asp His Gln  Glu Leu Asn
              1280                 1285                 1290


          Leu Asp  Val Ser Leu Gln Leu  Pro Ser Arg Ser Ser  Lys Ile Thr
 35           1295                 1300                 1305


          His Arg  Ile His Trp Glu Ser  Ala Ser Leu Leu Arg  Ser Glu Glu
              1310                 1315                 1320
 40
          Thr Lys  Glu Asn Glu Gly Phe  Thr Val Thr Ala Glu  Gly Lys Gly
              1325                 1330                 1335
 45
          Gln Gly  Thr Leu Ser Val Val  Thr Met Tyr His Ala  Lys Ala Lys
              1340                 1345                 1350

 50
          Asp Gln  Leu Thr Cys Asn Lys  Phe Asp Leu Lys Val  Thr Ile Lys
              1355                 1360                 1365


          Pro Ala  Pro Glu Thr Glu Lys  Arg Pro Gln Asp Ala  Lys Asn Thr
 55           1370                 1375                 1380


          Met Ile  Leu Glu Ile Cys Thr  Arg Tyr Arg Gly Asp  Gln Asp Ala
              1385                 1390                 1395
 60
          Thr Met  Ser Ile Leu Asp Ile  Ser Met Met Thr Gly  Phe Ala Pro
              1400                 1405                 1410
 65
          Asp Thr  Asp Asp Leu Lys Gln  Leu Ala Asn Gly Val  Asp Arg Tyr
              1415                 1420                 1425

 70       Ile Ser  Lys Tyr Glu Leu Asp  Lys Ala Phe Ser Asp  Arg Asn Thr
```

```
              1430              1435              1440

 5       Leu Ile  Ile Tyr Leu Asp Lys  Val Ser His Ser Glu  Asp Asp Cys
             1445              1450              1455

         Leu Ala  Phe Lys Val His Gln  Tyr Phe Asn Val Glu  Leu Ile Gln
10           1460              1465              1470

         Pro Gly  Ala Val Lys Val Tyr  Ala Tyr Tyr Asn Leu  Glu Glu Ser
             1475              1480              1485
15
         Cys Thr  Arg Phe Tyr His Pro  Glu Lys Glu Asp Gly  Lys Leu Asn
             1490              1495              1500

20       Lys Leu  Cys Arg Asp Glu Leu  Cys Arg Cys Ala Glu  Glu Asn Cys
             1505              1510              1515

         Phe Ile  Gln Lys Ser Asp Asp  Lys Val Thr Leu Glu  Glu Arg Leu
25           1520              1525              1530

         Asp Lys  Ala Cys Glu Pro Gly  Val Asp Tyr Val Tyr  Lys Thr Arg
             1535              1540              1545
30
         Leu Val  Lys Val Gln Leu Ser  Asn Asp Phe Asp Glu  Tyr Ile Met
             1550              1555              1560
35
         Ala Ile  Glu Gln Thr Ile Lys  Ser Gly Ser Asp Glu  Val Gln Val
             1565              1570              1575

40       Gly Gln  Gln Arg Thr Phe Ile  Ser Pro Ile Lys Cys  Arg Glu Ala
             1580              1585              1590

         Leu Lys  Leu Glu Glu Lys Lys  His Tyr Leu Met Trp  Gly Leu Ser
45           1595              1600              1605

         Ser Asp  Phe Trp Gly Glu Lys  Pro Asn Leu Ser Tyr  Ile Ile Gly
             1610              1615              1620
50
         Lys Asp  Thr Trp Val Glu His  Trp Pro Glu Glu Asp  Glu Cys Gln
             1625              1630              1635
55
         Asp Glu  Glu Asn Gln Lys Gln  Cys Gln Asp Leu Gly  Ala Phe Thr
             1640              1645              1650

60       Glu Ser  Met Val Val Phe Gly  Cys Pro Asn
             1655              1660


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Met Ser Gly Leu Arg Val Tyr Ser Thr Ser Val Thr Gly Ser Arg Glu
1   5   10   15

Ile Lys Ser Gln Gln Ser Glu Val Thr Arg Ile Leu Asp Gly Lys Arg
            20   25   30

Ile Gln Tyr Gln Leu Val Asp Ile Ser Gln Asp Asn Ala Leu Arg Asp
            35   40   45

Glu Met Arg Ala Leu Ala Gly Asn Pro Lys Ala Thr Pro Pro Gln Ile
    50   55   60

Val Asn Gly Asp Gln Tyr Cys Gly Asp Tyr Glu Leu Phe Val Glu Ala
65   70   75   80

Val Glu Gln Asn Thr Leu Gln Glu Phe Leu Lys Leu Ala
                85   90

<210> 46
<211> 567
<212> PRT
<213> Homo sapiens

<300>
<308> Swiss-Prot/Q96RQ9
<309> 2003-02-28
<313> (1)..(567)

<400> 46

Met Ala Pro Leu Ala Leu His Leu Leu Val Leu Val Pro Ile Leu Leu
1   5   10   15

Ser Leu Val Ala Ser Gln Asp Trp Lys Ala Glu Arg Ser Gln Asp Pro
            20   25   30

Phe Glu Lys Cys Met Gln Asp Pro Asp Tyr Glu Gln Leu Leu Lys Val
            35   40   45

Val Thr Trp Gly Leu Asn Arg Thr Leu Lys Pro Gln Arg Val Ile Val
            50   55   60

Val Gly Ala Gly Val Ala Gly Leu Val Ala Ala Lys Val Leu Ser Asp
65   70   75   80

Ala Gly His Lys Val Thr Ile Leu Glu Ala Asp Asn Arg Ile Gly Gly
                85   90   95

Arg Ile Phe Thr Tyr Arg Asp Gln Asn Thr Gly Trp Ile Gly Glu Leu
                100   105   110

Gly Ala Met Arg Met Pro Ser Ser His Arg Ile Leu His Lys Leu Cys

115   120   125

5
Gln Gly Leu Gly Leu Asn Leu Thr Lys Phe Thr Gln Tyr Asp Lys Asn
    130   135   140

10
Thr Trp Thr Glu Val His Glu Val Lys Leu Arg Asn Tyr Val Val Glu
145   150   155   160

15
Lys Val Pro Glu Lys Leu Gly Tyr Ala Leu Arg Pro Gln Glu Lys Gly
                165   170   175

His Ser Pro Glu Asp Ile Tyr Gln Met Ala Leu Asn Gln Ala Leu Lys
            180   185   190

20
Asp Leu Lys Ala Leu Gly Cys Arg Lys Ala Met Lys Lys Phe Glu Arg
            195   200   205

25
His Thr Leu Leu Glu Tyr Leu Leu Gly Glu Gly Asn Leu Ser Arg Pro
    210   215   220

30
Ala Val Gln Leu Leu Gly Asp Val Met Ser Glu Asp Gly Phe Phe Tyr
225   230   235   240

35
Leu Ser Phe Ala Glu Ala Leu Arg Ala His Ser Cys Leu Ser Asp Arg
            245   250   255

Leu Gln Tyr Ser Arg Ile Val Gly Gly Trp Asp Leu Leu Pro Arg Ala
            260   265   270

40
Leu Leu Ser Ser Leu Ser Gly Leu Val Leu Leu Asn Ala Pro Val Val
            275   280   285

45
Ala Met Thr Gln Gly Pro His Asp Val His Val Gln Ile Glu Thr Ser
    290   295   300

50
Pro Pro Ala Arg Asn Leu Lys Val Leu Lys Ala Asp Val Val Leu Leu
305   310   315   320

Thr Ala Ser Gly Pro Ala Val Lys Arg Ile Thr Phe Ser Pro Pro Leu
            325   330   335

55
Pro Arg His Met Gln Glu Ala Leu Arg Arg Leu His Tyr Val Pro Ala
            340   345   350

60
Thr Lys Val Phe Leu Ser Phe Arg Arg Pro Phe Trp Arg Glu Glu His
            355   360   365

65
Ile Glu Gly Gly His Ser Asn Thr Asp Arg Pro Ser Arg Met Ile Phe
    370   375   380

Tyr Pro Pro Pro Arg Glu Gly Ala Leu Leu Leu Ala Ser Tyr Thr Trp
385   390   395   400
70

```
            Ser Asp Ala Ala Ala Ala Phe Ala Gly Leu Ser Arg Glu Glu Ala Leu
                            405                 410                 415

            Arg Leu Ala Leu Asp Asp Val Ala Ala Leu His Gly Pro Val Val Arg
                        420                 425                 430

            Gln Leu Trp Asp Gly Thr Gly Val Val Lys Arg Trp Ala Glu Asp Gln
                        435                 440                 445

            His Ser Gln Gly Gly Phe Val Val Gln Pro Pro Ala Leu Trp Gln Thr
                    450                 455                 460

            Glu Lys Asp Asp Trp Thr Val Pro Tyr Gly Arg Ile Tyr Phe Ala Gly
            465                 470                 475                 480

            Glu His Thr Ala Tyr Pro His Gly Trp Val Glu Thr Ala Val Lys Ser
                            485                 490                 495

            Ala Leu Arg Ala Ala Ile Lys Ile Asn Ser Arg Lys Gly Pro Ala Ser
                        500                 505                 510

            Asp Thr Ala Ser Pro Glu Gly His Ala Ser Asp Met Glu Gly Gln Gly
                        515                 520                 525

            His Val His Gly Val Ala Ser Ser Pro Ser His Asp Leu Ala Lys Glu
                530                 535                 540

            Glu Gly Ser His Pro Pro Val Gln Gly Gln Leu Ser Leu Gln Asn Thr
            545                 550                 555                 560

            Thr His Thr Arg Thr Ser His
                            565
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<210>    47
<211>    462
<212>    PRT
<213>    Homo sapiens

<300>
<308>    Swiss-Prot/P02790
<309>    1986-07-21
<313>    (1)..(462)

<400>    47
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            Met Ala Arg Val Leu Gly Ala Pro Val Ala Leu Gly Leu Trp Ser Leu
            1                   5                   10                  15

            Cys Trp Ser Leu Ala Ile Ala Thr Pro Leu Pro Pro Thr Ser Ala His
                        20                  25                  30

            Gly Asn Val Ala Glu Gly Glu Thr Lys Pro Asp Pro Asp Val Thr Glu
                        35                  40                  45

            Arg Cys Ser Asp Gly Trp Ser Phe Asp Ala Thr Thr Leu Asp Asp Asn
```

```
              50                    55                    60

        Gly Thr Met Leu Phe Phe Lys Gly Glu Phe Val Trp Lys Ser His Lys
        65                   70                  75                  80

        Trp Asp Arg Glu Leu Ile Ser Glu Arg Trp Lys Asn Phe Pro Ser Pro
                         85                  90                  95

        Val Asp Ala Ala Phe Arg Gln Gly His Asn Ser Val Phe Leu Ile Lys
                     100             105                 110

        Gly Asp Lys Val Trp Val Tyr Pro Pro Glu Lys Lys Glu Lys Gly Tyr
                     115             120                 125

        Pro Lys Leu Leu Gln Asp Glu Phe Pro Gly Ile Pro Ser Pro Leu Asp
                 130             135             140

        Ala Ala Val Glu Cys His Arg Gly Glu Cys Gln Ala Glu Gly Val Leu
        145                 150                 155                 160

        Phe Phe Gln Gly Asp Arg Glu Trp Phe Trp Asp Leu Ala Thr Gly Thr
                         165                 170                 175

        Met Lys Glu Arg Ser Trp Pro Ala Val Gly Asn Cys Ser Ser Ala Leu
                     180             185                 190

        Arg Trp Leu Gly Arg Tyr Tyr Cys Phe Gln Gly Asn Gln Phe Leu Arg
                 195             200                 205

        Phe Asp Pro Val Arg Gly Glu Val Pro Pro Arg Tyr Pro Arg Asp Val
                 210             215                 220

        Arg Asp Tyr Phe Met Pro Cys Pro Gly Arg Gly His Gly His Arg Asn
        225                 230                 235                 240

        Gly Thr Gly His Gly Asn Ser Thr His His Gly Pro Glu Tyr Met Arg
                     245                 250                 255

        Cys Ser Pro His Leu Val Leu Ser Ala Leu Thr Ser Asp Asn His Gly
                     260             265                 270

        Ala Thr Tyr Ala Phe Ser Gly Thr His Tyr Trp Arg Leu Asp Thr Ser
                 275             280                 285

        Arg Asp Gly Trp His Ser Trp Pro Ile Ala His Gln Trp Pro Gln Gly
                 290             295                 300

        Pro Ser Ala Val Asp Ala Ala Phe Ser Trp Glu Glu Lys Leu Tyr Leu
                 305             310                 315                 320

        Val Gln Gly Thr Gln Val Tyr Val Phe Leu Thr Lys Gly Gly Tyr Thr
                     325             330                 335
```

```
Leu Val Ser Gly Tyr Pro Lys Arg Leu Glu Lys Glu Val Gly Thr Pro
            340             345             350

His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile Cys Pro Gly
            355             360             365

Ser Ser Arg Leu His Ile Met Ala Gly Arg Arg Leu Trp Trp Leu Asp
            370             375             380

Leu Lys Ser Gly Ala Gln Ala Thr Trp Thr Glu Leu Pro Trp Pro His
385             390             395             400

Glu Lys Val Asp Gly Ala Leu Cys Met Glu Lys Ser Leu Gly Pro Asn
                405             410             415

Ser Cys Ser Ala Asn Gly Pro Gly Leu Tyr Leu Ile His Gly Pro Asn
            420             425             430

Leu Tyr Cys Tyr Ser Asp Val Glu Lys Leu Asn Ala Ala Lys Ala Leu
        435             440             445

Pro Gln Pro Gln Asn Val Thr Ser Leu Leu Gly Cys Thr His
    450             455             460
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<210> 48
<211> 369
<212> PRT
<213> Homo sapiens

<300>
<308> Swiss-Prot/P50502
<309> 1996-10-02
<313> (1)..(369)

<400> 48

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Met Asp Pro Arg Lys Val Asn Glu Leu Arg Ala Phe Val Lys Met Cys
1               5               10              15

Lys Gln Asp Pro Ser Val Leu His Thr Glu Glu Met Arg Phe Leu Arg
            20              25              30

Glu Trp Val Glu Ser Met Gly Gly Lys Val Pro Pro Ala Thr Gln Lys
        35              40              45

Ala Lys Ser Glu Glu Asn Thr Lys Glu Glu Lys Pro Asp Ser Lys Lys
    50              55              60

Val Glu Glu Asp Leu Lys Ala Asp Glu Pro Ser Ser Glu Glu Ser Asp
65              70              75              80

Leu Glu Ile Asp Lys Glu Gly Val Ile Glu Pro Asp Thr Asp Ala Pro
            85              90              95

Gln Glu Met Gly Asp Glu Asn Ala Glu Ile Thr Glu Glu Met Met Asp
```

```
                          100                    105                    110

  5        Gln Ala Asn Asp Lys Lys Val Ala Ala Ile Glu Ala Leu Asn Asp Gly
                     115                 120                 125

           Glu Leu Gln Lys Ala Ile Asp Leu Phe Thr Asp Ala Ile Lys Leu Asn
                 130                 135                 140
 10

           Pro Arg Leu Ala Ile Leu Tyr Ala Lys Arg Ala Ser Val Phe Val Lys
           145                 150                 155                 160
 15
           Leu Gln Lys Pro Asn Ala Ala Ile Arg Asp Cys Asp Arg Ala Ile Glu
                         165                 170                 175

 20        Ile Asn Pro Asp Ser Ala Gln Pro Tyr Lys Trp Arg Gly Lys Ala His
                     180                 185                 190

           Arg Leu Leu Gly His Trp Glu Glu Ala Ala His Asp Leu Ala Leu Ala
 25                195                 200                 205

           Cys Lys Leu Asp Tyr Asp Glu Asp Ala Ser Ala Met Leu Lys Glu Val
               210                 215                 220
 30
           Gln Pro Arg Ala Gln Lys Ile Ala Glu His Arg Arg Lys Tyr Glu Arg
           225                 230                 235                 240
 35
           Lys Arg Glu Glu Arg Glu Ile Lys Glu Arg Ile Glu Arg Val Lys Lys
                         245                 250                 255

 40        Ala Arg Glu Glu His Glu Arg Ala Gln Arg Glu Glu Glu Ala Arg Arg
                     260                 265                 270

           Gln Ser Gly Ala Gln Tyr Gly Ser Phe Pro Gly Gly Phe Pro Gly Gly
 45                275                 280                 285

           Met Pro Gly Asn Phe Pro Gly Gly Met Pro Gly Met Gly Gly Gly Met
               290                 295                 300
 50
           Pro Gly Met Ala Gly Met Pro Gly Leu Asn Glu Ile Leu Ser Asp Pro
           305                 310                 315                 320
 55
           Glu Val Leu Ala Ala Met Gln Asp Pro Glu Val Met Val Ala Phe Gln
                         325                 330                 335

 60        Asp Val Ala Gln Asn Pro Ala Asn Met Ser Lys Tyr Gln Ser Asn Pro
                     340                 345                 350

           Lys Val Met Asn Leu Ile Ser Lys Leu Ser Ala Lys Phe Gly Gly Gln
 65                355                 360                 365

           Ala
 70
```

```
<210>   49
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   49

Met Gln Leu Met His Ala Asn Ala Gln
1               5


<210>   50
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   50

Leu Thr Leu Asp Ser Asn Thr Lys Tyr
1               5


<210>   51
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   51

Phe Val Ile Asp Lys Ser Gly Ser Met
1               5


<210>   52
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   52

Tyr Leu Leu Asp Ser Asn Ser Trp Ile
1               5


<210>   53
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   53

Tyr Glu Leu Asp Lys Ala Phe Ser Asp
1               5


<210>   54
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   54

Ile Lys Ser Gln Gln Ser Glu Val Thr
1               5


<210>   55
<211>   9
<212>   PRT
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<213>  Homo sapiens

<400>  55

Val Gln Ile Glu Thr Ser Pro Pro Ala
1               5


<210>  56
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  56

Ile Ile Leu Asp Ser Val Asp Ala Ala
1               5


<210>  57
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  57

Ile Glu Pro Asp Thr Asp Ala Pro Gln
1               5


<210>  58
<211>  17
<212>  PRT
<213>  Homo sapiens

<400>  58

Asn Ile Gln Pro Ile Phe Ala Val Thr Ser Arg Met Val Lys Thr Tyr
1               5               10              15

Glu


<210>  59
<211>  19
<212>  PRT
<213>  Homo sapiens

<400>  59

Glu Asn Asn Ile Gln Pro Ile Phe Ala Val Thr Ser Arg Met Val Lys
1               5               10              15

Thr Tyr Glu


<210>  60
<211>  17
<212>  PRT
<213>  Homo sapiens

<400>  60

Asn Lys Val Phe Gly Glu Asp Ser Val Gly Val Ile Phe Lys Asn Gly
1               5               10              15
```

Asp

<210>   61
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   61

Tyr Pro Glu Gln Leu Lys Met Thr Val Val Lys Leu Ile Ser His Arg
1   5   10   15

<210>   62
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   62

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr
1   5   10   15

<210>   63
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   63

Asn Gly Gly His Tyr Thr Tyr Ser Glu Asn Arg Val Glu Lys Asp Gly
1   5   10   15

<210>   64
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   64

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro
1   5   10   15

<210>   65
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   65

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu
1   5   10   15

<210>   66
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   66

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu
1   5   10   15

Asp

<210>   67
<211>   18
<212>   PRT
<213>   Homo sapiens

<400>   67

Gly Pro Asn Asn Tyr Tyr Ser Phe Ala Ser Gln Gln Gln Lys Pro Glu
1   5   10   15

Asp Thr

<210>   68
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   68

Glu Lys Leu Trp Phe Val Pro Ala Lys Val Glu Asp Ser Gly His Tyr
1   5   10   15

<210>   69
<211>   14
<212>   PRT
<213>   Homo sapiens

<400>   69

Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg
1   5   10

<210>   70
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   70

Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg
1   5   10

<210>   71
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   71

Glu Thr Met Lys Met Arg Tyr Glu His Ile Asp His Thr Phe Glu
1   5   10   15

<210>   72
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   72

Glu Thr Met Lys Met Arg Tyr Glu His Ile Asp His Thr Phe Glu Ile
1   5   10   15

Gln

<210> 73
<211> 16
<212> PRT
<213> Homo sapiens

<400> 73

His Met Phe Leu Gln Asp Glu Ile Ile Asp Lys Ser Tyr Thr Pro Ser
1   5   10   15

<210> 74
<211> 17
<212> PRT
<213> Homo sapiens

<400> 74

Val Asp Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp
1   5   10   15

Arg

<210> 75
<211> 14
<212> PRT
<213> Homo sapiens

<400> 75

Arg Tyr Ile Ser Lys Tyr Glu Leu Asp Lys Ala Phe Ser Asp
1   5   10

<210> 76
<211> 19
<212> PRT
<213> Homo sapiens

<400> 76

Leu Pro Val Gly Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly
1   5   10   15

Ile Pro Val

<210> 77
<211> 20
<212> PRT
<213> Homo sapiens

<400> 77

Leu Pro Val Gly Arg Thr Val Met Val Asn Ile Glu Asn Pro Glu Gly
1   5   10   15

Ile Pro Val Lys
                20

<210> 78
<211> 18
<212> PRT
<213> Homo sapiens

<400> 78

Gly Thr Pro His Gly Ile Ile Leu Asp Ser Val Asp Ala Ala Phe Ile
1   5   10   15

Cys Pro

<210> 79
<211> 18
<212> PRT
<213> Homo sapiens

<400> 79

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1   5   10   15

Gln Gly

<210> 80
<211> 17
<212> PRT
<213> Homo sapiens

<400> 80

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1   5   10   15

Gln

<210> 81
<211> 16
<212> PRT
<213> Homo sapiens

<400> 81

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
1   5   10   15

<210> 82
<211> 21
<212> PRT
<213> Homo sapiens

<400> 82

Met Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro

```
       1                    5                      10                     15
```

```
       Gln Gly Pro Met Gln
  5                    20
```

```
       <210>   83
       <211>   15
 10    <212>   PRT
       <213>   Homo sapiens

       <400>   83
```

```
 15    Ala Thr Pro Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro
       1                    5                      10                     15
```

```
       <210>   84
 20    <211>   23
       <212>   PRT
       <213>   Homo sapiens

       <400>   84
 25
       His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala
       1                    5                      10                     15
```

```
 30    Val Asp Thr Pro Phe Pro Ala
                        20
```

```
       <210>   85
 35    <211>   24
       <212>   PRT
       <213>   Homo sapiens

       <400>   85
 40
       His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala
       1                    5                      10                     15
```

```
 45    Val Asp Thr Pro Phe Pro Ala Gly
                        20
```

```
       <210>   86
 50    <211>   22
       <212>   PRT
       <213>   Homo sapiens

       <400>   86
 55
       His Pro Pro Val Gln Trp Ala Phe Gln Glu Thr Ser Val Glu Ser Ala
       1                    5                      10                     15
```

```
 60    Val Asp Thr Pro Phe Pro
                        20
```

```
       <210>   87
 65    <211>   17
       <212>   PRT
       <213>   Homo sapiens

       <400>   87
 70
```

```
Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val
1               5                   10                  15

Val
```

```
<210>  88
<211>  16
<212>  PRT
<213>  Homo sapiens

<400>  88

Lys Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val
1               5                   10                  15
```

```
<210>  89
<211>  17
<212>  PRT
<213>  Homo sapiens

<400>  89

Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val
1               5                   10                  15

Ile
```

```
<210>  90
<211>  15
<212>  PRT
<213>  Homo sapiens

<400>  90

Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val
1               5                   10                  15
```

```
<210>  91
<211>  16
<212>  PRT
<213>  Homo sapiens

<400>  91

Ile Tyr Leu Tyr Thr Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val
1               5                   10                  15
```

```
<210>  92
<211>  15
<212>  PRT
<213>  Homo sapiens

<400>  92

Tyr Asn Ser Tyr Ser Val Ser Asn Ser Glu Lys Asp Ile Met Ala
1               5                   10                  15
```

```
<210>  93
<211>  15
<212>  PRT
```

<213>   Homo sapiens

<400>   93

Ala Gly Ser Leu Thr Leu Ser Lys Thr Glu Leu Gly Lys Lys Ala
1   5   10   15

<210>   94
<211>   16
<212>   PRT
<213>   Homo sapiens

<400>   94

Ala Gly Ser Leu Thr Leu Ser Lys Thr Glu Leu Gly Lys Lys Ala Asp
1   5   10   15

<210>   95
<211>   14
<212>   PRT
<213>   Homo sapiens

<400>   95

Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Thr Pro Gln Asn
1   5   10

<210>   96
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   96

Asp Ser Lys Phe His Gln Ala Ile Asn Asp Ala His Gln
1   5   10

<210>   97
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   97

Met Pro Leu Glu Phe Lys Thr Leu Asn Val Leu His Asn Arg Gly
1   5   10   15

<210>   98
<211>   15
<212>   PRT
<213>   Homo sapiens

<400>   98

Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln
1   5   10   15

<210>   99
<211>   18
<212>   PRT
<213>   Homo sapiens

<400>   99

```
Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile
1               5                   10                  15

Trp Asp
```

```
<210>   100
<211>   14
<212>   PRT
<213>   Homo sapiens

<400>   100

Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln
1               5                   10
```

```
<210>   101
<211>   17
<212>   PRT
<213>   Homo sapiens

<400>   101

Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile
1               5                   10                  15

Trp
```

```
<210>   102
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   102

Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln
1               5                   10
```

```
<210>   103
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   103

Ile Gln Pro Ile Phe Ala Val Thr Ser
1               5
```

```
<210>   104
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   104

Val Phe Gly Glu Asp Ser Val Gly Val
1               5
```

```
<210>   105
<211>   9
<212>   PRT
```

<213> Homo sapiens

<400> 105

Leu Lys Met Thr Val Val Lys Leu Ile
1   5

<210> 106
<211> 9
<212> PRT
<213> Homo sapiens

<400> 106

Tyr Leu Gln Met Asn Ser Leu Arg Ala
1   5

<210> 107
<211> 9
<212> PRT
<213> Homo sapiens

<400> 107

Tyr Thr Tyr Ser Glu Asn Arg Val Glu
1   5

<210> 108
<211> 9
<212> PRT
<213> Homo sapiens

<400> 108

Tyr Tyr Ser Phe Ala Ser Gln Gln Gln
1   5

<210> 109
<211> 9
<212> PRT
<213> Homo sapiens

<400> 109

Phe Val Pro Ala Lys Val Glu Asp Ser
1   5

<210> 110
<211> 9
<212> PRT
<213> Homo sapiens

<400> 110

Leu His Leu Asp His Asn Gln Ile Ser
1   5

<210> 111
<211> 9
<212> PRT
<213> Homo sapiens

<400> 111

```
Met Arg Tyr Glu His Ile Asp His Thr
1               5


<210>  112
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  112

Phe Leu Gln Asp Glu Ile Ile Asp Lys
1               5


<210>  113
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  113

Met Val Asn Ile Glu Asn Pro Glu Gly
1               5


<210>  114
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  114

Leu Met Gln Ala Leu Pro Met Gly Ala
1               5


<210>  115
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  115

Trp Ala Phe Gln Glu Thr Ser Val Glu
1               5


<210>  116
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  116

Tyr Thr Leu Asn Asp Asn Ala Arg Ser
1               5


<210>  117
<211>  9
<212>  PRT
<213>  Homo sapiens

<400>  117

Tyr Ser Val Ser Asn Ser Glu Lys Asp
1               5
```

```
<210>   118
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   118

Leu Thr Leu Ser Lys Thr Glu Leu Gly
1               5


<210>   119
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   119

Tyr Thr Gly Glu Asp Val Thr Pro Gln
1               5


<210>   120
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   120

Phe His Gln Ala Ile Asn Asp Ala His
1               5


<210>   121
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   121

Phe Lys Thr Leu Asn Val Leu His Asn
1               5


<210>   122
<211>   9
<212>   PRT
<213>   Homo sapiens

<400>   122

Ile Gln Val Asp Gly Lys Thr Ile Lys
1               5


<210>   123
<211>   769
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/P05107
<309>   1987-08-13
<313>   (1)..(769)

<400>   123

Met Leu Gly Leu Arg Pro Pro Leu Leu Ala Leu Val Gly Leu Leu Ser
1               5                   10                  15
```

```
     Leu Gly Cys Val Leu Ser Gln Glu Cys Thr Lys Phe Lys Val Ser Ser
                  20                  25                  30

     Cys Arg Glu Cys Ile Glu Ser Gly Pro Gly Cys Thr Trp Cys Gln Lys
                  35                  40                  45

     Leu Asn Phe Thr Gly Pro Gly Asp Pro Asp Ser Ile Arg Cys Asp Thr
                  50                  55                  60

     Arg Pro Gln Leu Leu Met Arg Gly Cys Ala Ala Asp Asp Ile Met Asp
     65                  70                  75                  80

     Pro Thr Ser Leu Ala Glu Thr Gln Glu Asp His Asn Gly Gly Gln Lys
                       85                  90                  95

     Gln Leu Ser Pro Gln Lys Val Thr Leu Tyr Leu Arg Pro Gly Gln Ala
                  100                 105                 110

     Ala Ala Phe Asn Val Thr Phe Arg Arg Ala Lys Gly Tyr Pro Ile Asp
                  115                 120                 125

     Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Leu Asp Asp Leu Arg
          130                 135                 140

     Asn Val Lys Lys Leu Gly Gly Asp Leu Leu Arg Ala Leu Asn Glu Ile
     145                 150                 155                 160

     Thr Glu Ser Gly Arg Ile Gly Phe Gly Ser Phe Val Asp Lys Thr Val
                       165                 170                 175

     Leu Pro Phe Val Asn Thr His Pro Asp Lys Leu Arg Asn Pro Cys Pro
                  180                 185                 190

     Asn Lys Glu Lys Glu Cys Gln Pro Pro Phe Ala Phe Arg His Val Leu
          195                 200                 205

     Lys Leu Thr Asn Asn Ser Asn Gln Phe Gln Thr Glu Val Gly Lys Gln
          210                 215                 220

     Leu Ile Ser Gly Asn Leu Asp Ala Pro Glu Gly Gly Leu Asp Ala Met
     225                 230                 235                 240

     Met Gln Val Ala Ala Cys Pro Glu Glu Ile Gly Trp Arg Asn Val Thr
                       245                 250                 255

     Arg Leu Leu Val Phe Ala Thr Asp Asp Gly Phe His Phe Ala Gly Asp
                  260                 265                 270

     Gly Lys Leu Gly Ala Ile Leu Thr Pro Asn Asp Gly Arg Cys His Leu
          275                 280                 285

     Glu Asp Asn Leu Tyr Lys Arg Ser Asn Glu Phe Asp Tyr Pro Ser Val
```

                290   295   300

      Gly Gln Leu Ala His Lys Leu Ala Glu Asn Asn Ile Gln Pro Ile Phe
  5   305   310   315   320

      Ala Val Thr Ser Arg Met Val Lys Thr Tyr Glu Lys Leu Thr Glu Ile
 10   325   330   335

      Ile Pro Lys Ser Ala Val Gly Glu Leu Ser Glu Asp Ser Ser Asn Val
                      340   345   350

 15
      Val His Leu Ile Lys Asn Ala Tyr Asn Lys Leu Ser Ser Arg Val Phe
                      355   360   365

 20   Leu Asp His Asn Ala Leu Pro Asp Thr Leu Lys Val Thr Tyr Asp Ser
                      370   375   380

      Phe Cys Ser Asn Gly Val Thr His Arg Asn Gln Pro Arg Gly Asp Cys
 25   385   390   395   400

      Asp Gly Val Gln Ile Asn Val Pro Ile Thr Phe Gln Val Lys Val Thr
                      405   410   415
 30

      Ala Thr Glu Cys Ile Gln Glu Gln Ser Phe Val Ile Arg Ala Leu Gly
                      420   425   430

 35
      Phe Thr Asp Ile Val Thr Val Gln Val Leu Pro Gln Cys Glu Cys Arg
                      435   440   445

 40   Cys Arg Asp Gln Ser Arg Asp Arg Ser Leu Cys His Gly Lys Gly Phe
          450   455   460

 45   Leu Glu Cys Gly Ile Cys Arg Cys Asp Thr Gly Tyr Ile Gly Lys Asn
      465   470   475   480

      Cys Glu Cys Gln Thr Gln Gly Arg Ser Ser Gln Glu Leu Glu Gly Ser
                      485   490   495
 50

      Cys Arg Lys Asp Asn Asn Ser Ile Ile Cys Ser Gly Leu Gly Asp Cys
                      500   505   510

 55
      Val Cys Gly Gln Cys Leu Cys His Thr Ser Asp Val Pro Gly Lys Leu
                      515   520   525

 60   Ile Tyr Gly Gln Tyr Cys Glu Cys Asp Thr Ile Asn Cys Glu Arg Tyr
              530   535   540

      Asn Gly Gln Val Cys Gly Gly Pro Gly Arg Gly Leu Cys Phe Cys Gly
 65   545   550   555   560

      Lys Cys Arg Cys His Pro Gly Phe Glu Gly Ser Ala Cys Gln Cys Glu
                      565   570   575
 70

```
Arg Thr Thr Glu Gly Cys Leu Asn Pro Arg Arg Val Glu Cys Ser Gly
            580                 585                 590

Arg Gly Arg Cys Arg Cys Asn Val Cys Glu Cys His Ser Gly Tyr Gln
        595                 600                 605

Leu Pro Leu Cys Gln Glu Cys Pro Gly Cys Pro Ser Pro Cys Gly Lys
    610                 615                 620

Tyr Ile Ser Cys Ala Glu Cys Leu Lys Phe Glu Lys Gly Pro Phe Gly
625                 630                 635                 640

Lys Asn Cys Ser Ala Ala Cys Pro Gly Leu Gln Leu Ser Asn Asn Pro
                645                 650                 655

Val Lys Gly Arg Thr Cys Lys Glu Arg Asp Ser Glu Gly Cys Trp Val
            660                 665                 670

Ala Tyr Thr Leu Glu Gln Gln Asp Gly Met Asp Arg Tyr Leu Ile Tyr
        675                 680                 685

Val Asp Glu Ser Arg Glu Cys Val Ala Gly Pro Asn Ile Ala Ala Ile
    690                 695                 700

Val Gly Gly Thr Val Ala Gly Ile Val Leu Ile Gly Ile Leu Leu Leu
705                 710                 715                 720

Val Ile Trp Lys Ala Leu Ile His Leu Ser Asp Leu Arg Glu Tyr Arg
            725                 730                 735

Arg Phe Glu Lys Glu Lys Leu Lys Ser Gln Trp Asn Asn Asp Asn Pro
            740                 745                 750

Leu Phe Lys Ser Ala Thr Thr Thr Val Met Asn Pro Lys Phe Ala Glu
        755                 760                 765

Ser
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<210> 124
<211> 1070
<212> PRT
<213> Homo sapiens

<300>
<308> Swissprot/P42338
<309> 1995-11-01
<313> (1)..(1070)

<400> 124

```
Met Cys Phe Ser Phe Ile Met Pro Pro Ala Met Ala Asp Ile Leu Asp
1               5               10              15

Ile Trp Ala Val Asp Ser Gln Ile Ala Ser Asp Gly Ser Ile Pro Val
```

                    20   25   30

        Asp Phe Leu Leu Pro Thr Gly Ile Tyr Ile Gln Leu Glu Val Pro Arg
    5   35   40   45

        Glu Ala Thr Ile Ser Tyr Ile Lys Gln Met Leu Trp Lys Gln Val His
    10   50   55   60

        Asn Tyr Pro Met Phe Asn Leu Leu Met Asp Ile Asp Ser Tyr Met Phe
            65   70   75   80

    15
        Ala Cys Val Asn Gln Thr Ala Val Tyr Glu Glu Leu Glu Asp Glu Thr
                        85   90   95

    20 Arg Arg Leu Cys Asp Val Arg Pro Phe Leu Pro Val Leu Lys Leu Val
                        100   105   110

    25 Thr Arg Ser Cys Asp Pro Gly Glu Lys Leu Asp Ser Lys Ile Gly Val
                    115   120   125

        Leu Ile Gly Lys Gly Leu His Glu Phe Asp Ser Leu Lys Asp Pro Glu
            130   135   140

    30
        Val Asn Glu Phe Arg Arg Lys Met Arg Lys Phe Ser Glu Glu Lys Ile
        145   150   155   160

    35 Leu Ser Leu Val Gly Leu Ser Trp Met Asp Trp Leu Lys Gln Thr Tyr
                        165   170   175

    40 Pro Pro Glu His Glu Pro Ser Ile Pro Glu Asn Leu Glu Asp Lys Leu
                    180   185   190

    45 Tyr Gly Gly Lys Leu Ile Val Ala Val His Phe Glu Asn Cys Gln Asp
                195   200   205

        Val Phe Ser Phe Gln Val Ser Pro Asn Met Asn Pro Ile Lys Val Asn
            210   215   220

    50
        Glu Leu Ala Ile Gln Lys Arg Leu Thr Ile His Gly Lys Glu Asp Glu
        225   230   235   240

    55 Val Ser Pro Tyr Asp Tyr Val Leu Gln Val Ser Gly Arg Val Glu Tyr
                    245   250   255

    60 Val Phe Gly Asp His Pro Leu Ile Gln Phe Gln Tyr Ile Arg Asn Cys
                    260   265   270

    65 Val Met Asn Arg Ala Leu Pro His Phe Ile Leu Val Glu Cys Cys Lys
                    275   280   285

        Ile Lys Lys Met Tyr Glu Gln Glu Met Ile Ala Ile Glu Ala Ala Ile
            290   295   300
    70

Asn Arg Asn Ser Ser Asn Leu Pro Leu Pro Leu Pro Pro Lys Lys Thr
305   310   315   320

Arg Ile Ile Ser His Val Trp Glu Asn Asn Asn Pro Phe Gln Ile Val
                325   330   335

Leu Val Lys Gly Asn Lys Leu Asn Thr Glu Glu Thr Val Lys Val His
            340   345   350

Val Arg Ala Gly Leu Phe His Gly Thr Glu Leu Leu Cys Lys Thr Ile
        355   360   365

Val Ser Ser Glu Val Ser Gly Lys Asn Asp His Ile Trp Asn Glu Pro
    370   375   380

Leu Glu Phe Asp Ile Asn Ile Cys Asp Leu Pro Arg Met Ala Arg Leu
385   390   395   400

Cys Phe Ala Val Tyr Ala Val Leu Asp Lys Val Lys Thr Lys Lys Ser
            405   410   415

Thr Lys Thr Ile Asn Pro Ser Lys Tyr Gln Thr Ile Arg Lys Ala Gly
            420   425   430

Lys Val His Tyr Pro Val Ala Trp Val Asn Thr Met Val Phe Asp Phe
        435   440   445

Lys Gly Gln Leu Arg Thr Gly Asp Ile Ile Leu His Ser Trp Ser Ser
    450   455   460

Phe Pro Asp Glu Leu Glu Glu Met Leu Asn Pro Met Gly Thr Val Gln
465   470   475   480

Thr Asn Pro Tyr Thr Glu Asn Ala Thr Ala Leu His Val Lys Phe Pro
            485   490   495

Glu Asn Lys Lys Gln Pro Tyr Tyr Tyr Pro Pro Phe Asp Lys Ile Ile
            500   505   510

Glu Lys Ala Ala Glu Ile Ala Ser Ser Asp Ser Ala Asn Val Ser Ser
        515   520   525

Arg Gly Gly Lys Lys Phe Leu Pro Val Leu Lys Glu Ile Leu Asp Arg
    530   535   540

Asp Pro Leu Ser Gln Leu Cys Glu Asn Glu Met Asp Leu Ile Trp Thr
545   550   555   560

Leu Arg Gln Asp Cys Arg Glu Ile Phe Pro Gln Ser Leu Pro Lys Leu
            565   570   575

Leu Leu Ser Ile Lys Trp Asn Lys Leu Glu Asp Val Ala Gln Leu Gln

<pre>
                           580   585   590

        Ala Leu Leu Gln Ile Trp Pro Lys Leu Pro Pro Arg Glu Ala Leu Glu
    5   595   600   605

        Leu Leu Asp Phe Asn Tyr Pro Asp Gln Tyr Val Arg Glu Tyr Ala Val
                610   615   620
   10

        Gly Cys Leu Arg Gln Met Ser Asp Glu Glu Leu Ser Gln Tyr Leu Leu
        625   630   635   640

   15
        Gln Leu Val Gln Val Leu Lys Tyr Glu Pro Phe Leu Asp Cys Ala Leu
                        645   650   655

   20   Ser Arg Phe Leu Leu Glu Arg Ala Leu Gly Asn Arg Arg Ile Gly Gln
                    660   665   670

        Phe Leu Phe Trp His Leu Arg Ser Glu Val His Ile Pro Ala Val Ser
   25   675   680   685

        Val Gln Phe Gly Val Ile Leu Glu Ala Tyr Cys Arg Gly Ser Val Gly
                690   695   700
   30

        His Met Lys Val Leu Ser Lys Gln Val Glu Ala Leu Asn Lys Leu Lys
        705   710   715   720

   35
        Thr Leu Asn Ser Leu Ile Lys Leu Asn Ala Val Lys Leu Asn Arg Ala
                        725   730   735

   40   Lys Gly Lys Glu Ala Met His Thr Cys Leu Lys Gln Ser Ala Tyr Arg
                        740   745   750

        Glu Ala Leu Ser Asp Leu Gln Ser Pro Leu Asn Pro Cys Val Ile Leu
   45   755   760   765

        Ser Glu Leu Tyr Val Glu Lys Cys Lys Tyr Met Asp Ser Lys Met Lys
                770   775   780
   50

        Pro Leu Trp Leu Val Tyr Asn Asn Lys Val Phe Gly Glu Asp Ser Val
        785   790   795   800

   55
        Gly Val Ile Phe Lys Asn Gly Asp Asp Leu Arg Gln Asp Met Leu Thr
                        805   810   815

   60   Leu Gln Met Leu Arg Leu Met Asp Leu Leu Trp Lys Glu Ala Gly Leu
                        820   825   830

        Asp Leu Arg Met Leu Pro Tyr Gly Cys Leu Ala Thr Gly Asp Arg Ser
   65   835   840   845

        Gly Leu Ile Glu Val Val Ser Thr Ser Glu Thr Ile Ala Asp Ile Gln
                850   855   860
   70
</pre>

```
        Leu Asn Ser Ser Asn Val Ala Ala Ala Ala Ala Phe Asn Lys Asp Ala
        865             870             875             880

        Leu Leu Asn Trp Leu Lys Glu Tyr Asn Ser Gly Asp Asp Leu Asp Arg
                        885             890             895

        Ala Ile Glu Glu Phe Thr Leu Ser Cys Ala Gly Tyr Cys Val Ala Ser
                    900             905             910

        Tyr Val Leu Gly Ile Gly Asp Arg His Ser Asp Asn Ile Met Val Lys
                    915             920             925

        Lys Thr Gly Gln Leu Phe His Ile Asp Phe Gly His Ile Leu Gly Asn
            930             935             940

        Phe Lys Ser Lys Phe Gly Ile Lys Arg Glu Arg Val Pro Phe Ile Leu
        945             950             955             960

        Thr Tyr Asp Phe Ile His Val Ile Gln Gln Gly Lys Thr Gly Asn Thr
                        965             970             975

        Glu Lys Phe Gly Arg Phe Arg Gln Cys Cys Glu Asp Ala Tyr Leu Ile
                    980             985             990

        Leu Arg Arg His Gly Asn Leu Phe Ile Thr Leu Phe Ala Leu Met Leu
                    995             1000            1005

        Thr Ala Gly Leu Pro Glu Leu Thr Ser Val Lys Asp Ile Gln Tyr
            1010            1015            1020

        Leu Lys Asp Ser Leu Ala Leu Gly Lys Ser Glu Glu Glu Ala Leu
            1025            1030            1035

        Lys Gln Phe Lys Gln Lys Phe Asp Glu Ala Leu Arg Glu Ser Trp
            1040            1045            1050

        Thr Thr Lys Val Asn Trp Met Ala His Thr Val Arg Lys Asp Tyr
            1055            1060            1065

        Arg Ser
            1070


        <210>   125
        <211>   431
        <212>   PRT
        <213>   Homo sapiens

        <300>
        <308>   Swissprot/P00749
        <309>   1986-07-21
        <313>   (1)..(431)

        <400>   125

        Met Arg Ala Leu Leu Ala Arg Leu Leu Leu Cys Val Leu Val Val Ser
```

```
           1                5                    10                   15

   5      Asp Ser Lys Gly Ser Asn Glu Leu His Gln Val Pro Ser Asn Cys Asp
                       20                25                   30

  10      Cys Leu Asn Gly Gly Thr Cys Val Ser Asn Lys Tyr Phe Ser Asn Ile
                   35                40                   45

  15      His Trp Cys Asn Cys Pro Lys Lys Phe Gly Gly Gln His Cys Glu Ile
                   50                55                   60

  20      Asp Lys Ser Lys Thr Cys Tyr Glu Gly Asn Gly His Phe Tyr Arg Gly
           65               70                75                   80

          Lys Ala Ser Thr Asp Thr Met Gly Arg Pro Cys Leu Pro Trp Asn Ser
                           85                90                   95

  25      Ala Thr Val Leu Gln Gln Thr Tyr His Ala His Arg Ser Asp Ala Leu
                       100               105                  110

  30      Gln Leu Gly Leu Gly Lys His Asn Tyr Cys Arg Asn Pro Asp Asn Arg
                   115               120                  125

          Arg Arg Pro Trp Cys Tyr Val Gln Val Gly Leu Lys Pro Leu Val Gln
               130               135                  140

  35      Glu Cys Met Val His Asp Cys Ala Asp Gly Lys Lys Pro Ser Ser Pro
           145               150                  155               160

  40      Pro Glu Glu Leu Lys Phe Gln Cys Gly Gln Lys Thr Leu Arg Pro Arg
                       165               170                  175

  45      Phe Lys Ile Ile Gly Gly Glu Phe Thr Thr Ile Glu Asn Gln Pro Trp
                       180               185                  190

          Phe Ala Ala Ile Tyr Arg Arg His Arg Gly Gly Ser Val Thr Tyr Val
                   195               200                  205

  50      Cys Gly Gly Ser Leu Met Ser Pro Cys Trp Val Ile Ser Ala Thr His
               210               215                  220

  55      Cys Phe Ile Asp Tyr Pro Lys Lys Glu Asp Tyr Ile Val Tyr Leu Gly
           225               230                  235               240

  60      Arg Ser Arg Leu Asn Ser Asn Thr Gln Gly Glu Met Lys Phe Glu Val
                       245               250                  255

  65      Glu Asn Leu Ile Leu His Lys Asp Tyr Ser Ala Asp Thr Leu Ala His
                       260               265                  270

  70      His Asn Asp Ile Ala Leu Leu Lys Ile Arg Ser Lys Glu Gly Arg Cys
                       275               280                  285
```

```
          Ala Gln Pro Ser Arg Thr Ile Gln Thr Ile Cys Leu Pro Ser Met Tyr
              290                 295                 300

          Asn Asp Pro Gln Phe Gly Thr Ser Cys Glu Ile Thr Gly Phe Gly Lys
              305                 310                 315                 320

          Glu Asn Ser Thr Asp Tyr Leu Tyr Pro Glu Gln Leu Lys Met Thr Val
                          325                 330                 335

          Val Lys Leu Ile Ser His Arg Glu Cys Gln Gln Pro His Tyr Tyr Gly
                      340                 345                 350

          Ser Glu Val Thr Thr Lys Met Leu Cys Ala Ala Asp Pro Gln Trp Lys
                  355                 360                 365

          Thr Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Ser Leu
              370                 375                 380

          Gln Gly Arg Met Thr Leu Thr Gly Ile Val Ser Trp Gly Arg Gly Cys
          385                 390                 395                 400

          Ala Leu Lys Asp Lys Pro Gly Val Tyr Thr Arg Val Ser His Phe Leu
                          405                 410                 415

          Pro Trp Ile Arg Ser His Thr Lys Glu Glu Asn Gly Leu Ala Leu
                      420                 425                 430


          <210>   126
          <211>   117
          <212>   PRT
          <213>   Homo sapiens

          <300>
          <308>   Swissprot/P01764
          <309>   1986-07-21
          <313>   (1)..(117)

          <400>   126

          Met Glu Phe Gly Leu Ser Trp Leu Phe Leu Val Ala Ile Leu Lys Gly
          1               5                   10                  15

          Val Gln Cys Glu Val Gln Leu Leu Glu Ser Gly Gly Gly Leu Val Gln
                      20                  25                  30

          Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
                  35                  40                  45

          Ser Ser Tyr Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
              50                  55                  60

          Glu Trp Val Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Gly
          65                  70                  75                  80

          Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn
```

```
                    85                      90                      95


      Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
                  100                 105                 110


      Tyr Tyr Cys Ala Lys
                  115


      <210>  127
      <211>  189
      <212>  PRT
      <213>  Homo sapiens

      <300>
      <308>  Swissprot/Q99497
      <309>  1997-05-01
      <313>  (1)..(189)

      <400>  127

      Met Ala Ser Lys Arg Ala Leu Val Ile Leu Ala Lys Gly Ala Glu Glu
      1               5                   10                  15


      Met Glu Thr Val Ile Pro Val Asp Val Met Arg Arg Ala Gly Ile Lys
                  20                  25                  30


      Val Thr Val Ala Gly Leu Ala Gly Lys Asp Pro Val Gln Cys Ser Arg
                  35                  40                  45


      Asp Val Val Ile Cys Pro Asp Ala Ser Leu Glu Asp Ala Lys Lys Glu
                  50                  55                  60


      Gly Pro Tyr Asp Val Val Val Leu Pro Gly Gly Asn Leu Gly Ala Gln
      65                  70                  75                  80


      Asn Leu Ser Glu Ser Ala Ala Val Lys Glu Ile Leu Lys Glu Gln Glu
                  85                  90                  95


      Asn Arg Lys Gly Leu Ile Ala Ala Ile Cys Ala Gly Pro Thr Ala Leu
                  100                 105                 110


      Leu Ala His Glu Ile Gly Phe Gly Ser Lys Val Thr Thr His Pro Leu
                  115                 120                 125


      Ala Lys Asp Lys Met Met Asn Gly Gly His Tyr Thr Tyr Ser Glu Asn
                  130                 135                 140


      Arg Val Glu Lys Asp Gly Leu Ile Leu Thr Ser Arg Gly Pro Gly Thr
      145                 150                 155                 160


      Ser Phe Glu Phe Ala Leu Ala Ile Val Glu Ala Leu Asn Gly Lys Glu
                  165                 170                 175


      Val Ala Ala Gln Val Lys Ala Pro Leu Val Leu Lys Asp
                  180                 185
```

```
        <210>   128
        <211>   257
        <212>   PRT
  5     <213>   Homo sapiens

        <300>
        <308>   Swissprot/P48556
        <309>   1996-02-01
  10    <313>   (1)..(257)

        <400>   128
```

        Met Tyr Glu Gln Leu Lys Gly Glu Trp Asn Arg Lys Ser Pro Asn Leu
  15   1   5   10   15

        Ser Lys Cys Gly Glu Glu Leu Gly Arg Leu Lys Leu Val Leu Leu Glu
                    20   25   30
  20

        Leu Asn Phe Leu Pro Thr Thr Gly Thr Lys Leu Thr Lys Gln Gln Leu
                    35   40   45

  25
        Ile Leu Ala Arg Asp Ile Leu Glu Ile Gly Ala Gln Trp Ser Ile Leu
                50   55   60

  30   Arg Lys Asp Ile Pro Ser Phe Glu Arg Tyr Met Ala Gln Leu Lys Cys
        65   70   75   80

        Tyr Tyr Phe Asp Tyr Lys Glu Gln Leu Pro Glu Ser Ala Tyr Met His
  35   85   90   95

        Gln Leu Leu Gly Leu Asn Leu Leu Phe Leu Leu Ser Gln Asn Arg Val
                    100   105   110
  40

        Ala Glu Phe His Thr Glu Leu Glu Arg Leu Pro Ala Lys Asp Ile Gln
                    115   120   125

  45
        Thr Asn Val Tyr Ile Lys His Pro Val Ser Leu Glu Gln Tyr Leu Met
                    130   135   140

  50   Glu Gly Ser Tyr Asn Lys Val Phe Leu Ala Lys Gly Asn Ile Pro Ala
        145   150   155   160

        Glu Ser Tyr Thr Phe Phe Ile Asp Ile Leu Leu Asp Thr Ile Arg Asp
  55   165   170   175

        Glu Ile Ala Gly Cys Ile Glu Lys Ala Tyr Glu Lys Ile Leu Phe Thr
                    180   185   190

  60   Glu Ala Thr Arg Ile Leu Phe Phe Asn Thr Pro Lys Lys Met Thr Asp
                    195   200   205

  65   Tyr Ala Lys Lys Arg Gly Trp Val Leu Gly Pro Asn Asn Tyr Tyr Ser
                    210   215   220

  70   Phe Ala Ser Gln Gln Gln Lys Pro Glu Asp Thr Thr Ile Pro Ser Thr

| 225 | 230 | 235 | 240 |

```
Glu Leu Ala Lys Gln Val Ile Glu Tyr Ala Arg Gln Leu Glu Met Ile
                    245             250             255
```

```
Val
```

```
<210>  129
<211>  569
<212>  PRT
<213>  Homo sapiens

<300>
<308>  Swissprot/P14778
<309>  1990-04-01
<313>  (1)..(569)

<400>  129
```

```
Met Lys Val Leu Leu Arg Leu Ile Cys Phe Ile Ala Leu Leu Ile Ser
1               5                   10                  15
```

```
Ser Leu Glu Ala Asp Lys Cys Lys Glu Arg Glu Glu Lys Ile Ile Leu
                20              25              30
```

```
Val Ser Ser Ala Asn Glu Ile Asp Val Arg Pro Cys Pro Leu Asn Pro
                35              40              45
```

```
Asn Glu His Lys Gly Thr Ile Thr Trp Tyr Lys Asp Asp Ser Lys Thr
            50              55              60
```

```
Pro Val Ser Thr Glu Gln Ala Ser Arg Ile His Gln His Lys Glu Lys
65              70              75              80
```

```
Leu Trp Phe Val Pro Ala Lys Val Glu Asp Ser Gly His Tyr Tyr Cys
                85              90              95
```

```
Val Val Arg Asn Ser Ser Tyr Cys Leu Arg Ile Lys Ile Ser Ala Lys
                100             105             110
```

```
Phe Val Glu Asn Glu Pro Asn Leu Cys Tyr Asn Ala Gln Ala Ile Phe
                115             120             125
```

```
Lys Gln Lys Leu Pro Val Ala Gly Asp Gly Gly Leu Val Cys Pro Tyr
            130             135             140
```

```
Met Glu Phe Phe Lys Asn Glu Asn Asn Glu Leu Pro Lys Leu Gln Trp
145             150             155             160
```

```
Tyr Lys Asp Cys Lys Pro Leu Leu Leu Asp Asn Ile His Phe Ser Gly
                165             170             175
```

```
Val Lys Asp Arg Leu Ile Val Met Asn Val Ala Glu Lys His Arg Gly
                180             185             190
```

```
       Asn Tyr Thr Cys His Ala Ser Tyr Thr Tyr Leu Gly Lys Gln Tyr Pro
               195             200             205
```

```
       Ile Thr Arg Val Ile Glu Phe Ile Thr Leu Glu Glu Asn Lys Pro Thr
               210             215             220
```

```
       Arg Pro Val Ile Val Ser Pro Ala Asn Glu Thr Met Glu Val Asp Leu
       225             230             235             240
```

```
       Gly Ser Gln Ile Gln Leu Ile Cys Asn Val Thr Gly Gln Leu Ser Asp
                       245             250             255
```

```
       Ile Ala Tyr Trp Lys Trp Asn Gly Ser Val Ile Asp Glu Asp Asp Pro
                   260             265             270
```

```
       Val Leu Gly Glu Asp Tyr Tyr Ser Val Glu Asn Pro Ala Asn Lys Arg
               275             280             285
```

```
       Arg Ser Thr Leu Ile Thr Val Leu Asn Ile Ser Glu Ile Glu Ser Arg
       290             295             300
```

```
       Phe Tyr Lys His Pro Phe Thr Cys Phe Ala Lys Asn Thr His Gly Ile
       305             310             315             320
```

```
       Asp Ala Ala Tyr Ile Gln Leu Ile Tyr Pro Val Thr Asn Phe Gln Lys
                   325             330             335
```

```
       His Met Ile Gly Ile Cys Val Thr Leu Thr Val Ile Ile Val Cys Ser
               340             345             350
```

```
       Val Phe Ile Tyr Lys Ile Phe Lys Ile Asp Ile Val Leu Trp Tyr Arg
               355             360             365
```

```
       Asp Ser Cys Tyr Asp Phe Leu Pro Ile Lys Ala Ser Asp Gly Lys Thr
           370             375             380
```

```
       Tyr Asp Ala Tyr Ile Leu Tyr Pro Lys Thr Val Gly Glu Gly Ser Thr
       385             390             395             400
```

```
       Ser Asp Cys Asp Ile Phe Val Phe Lys Val Leu Pro Glu Val Leu Glu
                   405             410             415
```

```
       Lys Gln Cys Gly Tyr Lys Leu Phe Ile Tyr Gly Arg Asp Asp Tyr Val
               420             425             430
```

```
       Gly Glu Asp Ile Val Glu Val Ile Asn Glu Asn Val Lys Lys Ser Arg
               435             440             445
```

```
       Arg Leu Ile Ile Ile Leu Val Arg Glu Thr Ser Gly Phe Ser Trp Leu
       450             455             460
```

```
       Gly Gly Ser Ser Glu Glu Gln Ile Ala Met Tyr Asn Ala Leu Val Gln
```

```
        465                    470                    475                    480
    Asp Gly Ile Lys Val Val Leu Leu Glu Leu Glu Lys Ile Gln Asp Tyr
5                       485                490                495

    Glu Lys Met Pro Glu Ser Ile Lys Phe Ile Lys Gln Lys His Gly Ala
10                  500                505                510

    Ile Arg Trp Ser Gly Asp Phe Thr Gln Gly Pro Gln Ser Ala Lys Thr
                515                520                525
15
    Arg Phe Trp Lys Asn Val Arg Tyr His Met Pro Val Gln Arg Arg Ser
                530                535                540

20  Pro Ser Ser Lys His Gln Leu Leu Ser Pro Ala Thr Lys Glu Lys Leu
    545                550                555                560

    Gln Arg Glu Ala His Val Pro Leu Gly
25                  565
```

```
<210>   130
<211>   376
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/Q06828
<309>   1994-06-01
<313>   (1)..(376)

<400>   130
```

```
    Met Gln Trp Thr Ser Leu Leu Leu Leu Ala Gly Leu Phe Ser Leu Ser
    1               5                   10                  15

    Gln Ala Gln Tyr Glu Asp Asp Pro His Trp Trp Phe His Tyr Leu Arg
                20                  25                  30

    Ser Gln Gln Ser Thr Tyr Tyr Asp Pro Tyr Asp Pro Tyr Pro Tyr Glu
                35                  40                  45

    Thr Tyr Glu Pro Tyr Pro Tyr Gly Val Asp Glu Gly Pro Ala Tyr Thr
            50                  55                  60

    Tyr Gly Ser Pro Ser Pro Pro Asp Pro Arg Asp Cys Pro Gln Glu Cys
    65                  70                  75                  80

    Asp Cys Pro Pro Asn Phe Pro Thr Ala Met Tyr Cys Asp Asn Arg Asn
                    85                  90                  95

    Leu Lys Tyr Leu Pro Phe Val Pro Ser Arg Met Lys Tyr Val Tyr Phe
                100                 105                 110

    Gln Asn Asn Gln Ile Thr Ser Ile Gln Glu Gly Val Phe Asp Asn Ala
                115                 120                 125
```

Thr Gly Leu Leu Trp Ile Ala Leu His Gly Asn Gln Ile Thr Ser Asp
    130   135   140

Lys Val Gly Arg Lys Val Phe Ser Lys Leu Arg His Leu Glu Arg Leu
    145   150   155   160

Tyr Leu Asp His Asn Asn Leu Thr Arg Met Pro Gly Pro Leu Pro Arg
            165   170   175

Ser Leu Arg Glu Leu His Leu Asp His Asn Gln Ile Ser Arg Val Pro
            180   185   190

Asn Asn Ala Leu Glu Gly Leu Glu Asn Leu Thr Ala Leu Tyr Leu Gln
        195   200   205

His Asn Glu Ile Gln Glu Val Gly Ser Ser Met Arg Gly Leu Arg Ser
    210   215   220

Leu Tyr Leu Leu Asp Leu Ser Tyr Asn His Leu Arg Lys Val Pro Asp
    225   230   235   240

Gly Leu Pro Ser Ala Leu Glu Gln Leu Tyr Met Glu His Asn Asn Val
            245   250   255

Tyr Thr Val Pro Asp Ser Tyr Phe Arg Gly Ala Pro Lys Leu Leu Tyr
            260   265   270

Val Arg Leu Ser His Asn Ser Leu Thr Asn Asn Gly Leu Ala Ser Asn
        275   280   285

Thr Phe Asn Ser Ser Ser Leu Leu Glu Leu Asp Leu Ser Tyr Asn Gln
        290   295   300

Leu Gln Lys Ile Pro Pro Val Asn Thr Asn Leu Glu Asn Leu Tyr Leu
    305   310   315   320

Gln Gly Asn Arg Ile Asn Glu Phe Ser Ile Ser Ser Phe Cys Thr Val
            325   330   335

Val Asp Val Val Asn Phe Ser Gln Leu Gln Val Val Arg Leu Asp Gly
            340   345   350

Asn Glu Met Lys Arg Ser Ala Met Pro Ala Glu Ala Pro Leu Cys Leu
        355   360   365

Arg Leu Ala Ser Leu Ile Glu Ile
    370   375

<210> 131
<211> 897
<212> PRT
<213> Homo sapiens

```
<300>
<308>   Swissprot/P32927
<309>   1993-10-01
<313>   (1)..(897)

<400>   131

Met Val Leu Ala Gln Gly Leu Leu Ser Met Ala Leu Leu Ala Leu Cys
1               5                   10                  15

Trp Glu Arg Ser Leu Ala Gly Ala Glu Glu Thr Ile Pro Leu Gln Thr
            20                  25                  30

Leu Arg Cys Tyr Asn Asp Tyr Thr Ser His Ile Thr Cys Arg Trp Ala
        35                  40                  45

Asp Thr Gln Asp Ala Gln Arg Leu Val Asn Val Thr Leu Ile Arg Arg
        50                  55                  60

Val Asn Glu Asp Leu Leu Glu Pro Val Ser Cys Asp Leu Ser Asp Asp
65                  70                  75                  80

Met Pro Trp Ser Ala Cys Pro His Pro Arg Cys Val Pro Arg Arg Cys
                85                  90                  95

Val Ile Pro Cys Gln Ser Phe Val Val Thr Asp Val Asp Tyr Phe Ser
            100                 105                 110

Phe Gln Pro Asp Arg Pro Leu Gly Thr Arg Leu Thr Val Thr Leu Thr
        115                 120                 125

Gln His Val Gln Pro Pro Glu Pro Arg Asp Leu Gln Ile Ser Thr Asp
        130                 135                 140

Gln Asp His Phe Leu Leu Thr Trp Ser Val Ala Leu Gly Ser Pro Gln
145                 150                 155                 160

Ser His Trp Leu Ser Pro Gly Asp Leu Glu Phe Glu Val Val Tyr Lys
                165                 170                 175

Arg Leu Gln Asp Ser Trp Glu Asp Ala Ala Ile Leu Leu Ser Asn Thr
            180                 185                 190

Ser Gln Ala Thr Leu Gly Pro Glu His Leu Met Pro Ser Ser Thr Tyr
        195                 200                 205

Val Ala Arg Val Arg Thr Arg Leu Ala Pro Gly Ser Arg Leu Ser Gly
        210                 215                 220

Arg Pro Ser Lys Trp Ser Pro Glu Val Cys Trp Asp Ser Gln Pro Gly
225                 230                 235                 240

Asp Glu Ala Gln Pro Gln Asn Leu Glu Cys Phe Phe Asp Gly Ala Ala
                245                 250                 255
```

Val Leu Ser Cys Ser Trp Glu Val Arg Lys Glu Val Ala Ser Ser Val
            260   265   270

Ser Phe Gly Leu Phe Tyr Lys Pro Ser Pro Asp Ala Gly Glu Glu Glu
            275   280   285

Cys Ser Pro Val Leu Arg Glu Gly Leu Gly Ser Leu His Thr Arg His
    290   295   300

His Cys Gln Ile Pro Val Pro Asp Pro Ala Thr His Gly Gln Tyr Ile
305   310   315   320

Val Ser Val Gln Pro Arg Arg Ala Glu Lys His Ile Lys Ser Ser Val
            325   330   335

Asn Ile Gln Met Ala Pro Pro Ser Leu Asn Val Thr Lys Asp Gly Asp
            340   345   350

Ser Tyr Ser Leu Arg Trp Glu Thr Met Lys Met Arg Tyr Glu His Ile
    355   360   365

Asp His Thr Phe Glu Ile Gln Tyr Arg Lys Asp Thr Ala Thr Trp Lys
    370   375   380

Asp Ser Lys Thr Glu Thr Leu Gln Asn Ala His Ser Met Ala Leu Pro
385   390   395   400

Ala Leu Glu Pro Ser Thr Arg Tyr Trp Ala Arg Val Arg Val Arg Thr
            405   410   415

Ser Arg Thr Gly Tyr Asn Gly Ile Trp Ser Glu Trp Ser Glu Ala Arg
            420   425   430

Ser Trp Asp Thr Glu Ser Val Leu Pro Met Trp Val Leu Ala Leu Ile
    435   440   445

Val Ile Phe Leu Thr Ile Ala Val Leu Leu Ala Leu Arg Phe Cys Gly
    450   455   460

Ile Tyr Gly Tyr Arg Leu Arg Arg Lys Trp Glu Glu Lys Ile Pro Asn
465   470   475   480

Pro Ser Lys Ser His Leu Phe Gln Asn Gly Ser Ala Glu Leu Trp Pro
            485   490   495

Pro Gly Ser Met Ser Ala Phe Thr Ser Gly Ser Pro Pro His Gln Gly
            500   505   510

Pro Trp Gly Ser Arg Phe Pro Glu Leu Glu Gly Val Phe Pro Val Gly
    515   520   525

Phe Gly Asp Ser Glu Val Ser Pro Leu Thr Ile Glu Asp Pro Lys His

```
              530                    535                    540

        Val Cys Asp Pro Pro Ser Gly Pro Asp Thr Thr Pro Ala Ala Ser Asp
  5     545             550             555                     560

        Leu Pro Thr Glu Gln Pro Pro Ser Pro Gln Pro Gly Pro Pro Ala Ala
                        565             570                     575
 10

        Ser His Thr Pro Glu Lys Gln Ala Ser Ser Phe Asp Phe Asn Gly Pro
                    580             585                 590

 15
        Tyr Leu Gly Pro Pro His Ser Arg Ser Leu Pro Asp Ile Leu Gly Gln
                    595             600                 605

 20     Pro Glu Pro Pro Gln Glu Gly Gly Ser Gln Lys Ser Pro Pro Pro Gly
                610             615                 620

        Ser Leu Glu Tyr Leu Cys Leu Pro Ala Gly Gly Gln Val Gln Leu Val
 25     625             630             635                     640

        Pro Leu Ala Gln Ala Met Gly Pro Gly Gln Ala Val Glu Val Glu Arg
                        645             650                 655
 30

        Arg Pro Ser Gln Gly Ala Ala Gly Ser Pro Ser Leu Glu Ser Gly Gly
                    660             665                 670

 35
        Gly Pro Ala Pro Pro Ala Leu Gly Pro Arg Val Gly Gly Gln Asp Gln
                    675             680                 685

 40     Lys Asp Ser Pro Val Ala Ile Pro Met Ser Ser Gly Asp Thr Glu Asp
                690             695                 700

        Pro Gly Val Ala Ser Gly Tyr Val Ser Ser Ala Asp Leu Val Phe Thr
 45     705             710             715                     720

        Pro Asn Ser Gly Ala Ser Ser Val Ser Leu Val Pro Ser Leu Gly Leu
                        725             730                 735
 50

        Pro Ser Asp Gln Thr Pro Ser Leu Cys Pro Gly Leu Ala Ser Gly Pro
                    740             745                 750

 55
        Pro Gly Ala Pro Gly Pro Val Lys Ser Gly Phe Glu Gly Tyr Val Glu
                    755             760                 765

 60     Leu Pro Pro Ile Glu Gly Arg Ser Pro Arg Ser Pro Arg Asn Asn Pro
                770             775                 780

        Val Pro Pro Glu Ala Lys Ser Pro Val Leu Asn Pro Gly Glu Arg Pro
 65     785             790             795                     800

        Ala Asp Val Ser Pro Thr Ser Pro Gln Pro Glu Gly Leu Leu Val Leu
                        805             810                 815
 70
```

```
Gln Gln Val Gly Asp Tyr Cys Phe Leu Pro Gly Leu Gly Pro Gly Pro
            820             825             830

Leu Ser Leu Arg Ser Lys Pro Ser Ser Pro Gly Pro Gly Pro Glu Ile
            835             840             845

Lys Asn Leu Asp Gln Ala Phe Gln Val Lys Lys Pro Pro Gly Gln Ala
            850             855             860

Val Pro Gln Val Pro Val Ile Gln Leu Phe Lys Ala Leu Lys Gln Gln
865             870             875             880

Asp Tyr Leu Ser Leu Pro Pro Trp Glu Val Asn Lys Pro Gly Glu Val
            885             890             895

Cys
```

```
<210>   132
<211>   261
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/Q60493
<309>   1996-11-01
<313>   (1)..(261)

<400>   132
```

```
Met Ile Tyr Lys Cys Pro Met Cys Arg Glu Phe Phe Ser Glu Arg Ala
1               5               10              15

Asp Leu Phe Met His Gln Lys Val His Thr Ala Glu Lys Pro His Lys
            20              25              30

Cys Asp Lys Cys Asp Lys Gly Phe Phe His Ile Ser Glu Leu His Ile
            35              40              45

His Trp Arg Asp His Thr Gly Glu Lys Val Tyr Lys Cys Asp Asp Cys
            50              55              60

Gly Lys Asp Phe Ser Thr Thr Thr Lys Leu Asn Arg His Lys Lys Ile
65              70              75              80

His Thr Val Glu Lys Pro Tyr Lys Cys Tyr Glu Cys Gly Lys Ala Phe
            85              90              95

Asn Trp Ser Pro His Leu Gln Ile His Met Arg Val His Thr Gly Glu
            100             105             110

Lys Pro Tyr Val Cys Ser Glu Cys Gly Arg Gly Phe Ser Asn Ser Ser
            115             120             125

Asn Leu Cys Met His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys
```

                    130   135   140

        Cys Glu Glu Cys Gly Lys Ala Phe Arg His Thr Ser Ser Leu Cys Met
        145   150   155   160

        His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Tyr Glu Cys
                          165   170   175

        Gly Lys Ala Phe Ser Gln Ser Ser Ser Leu Cys Ile His Gln Arg Val
                          180   185   190

        His Thr Gly Glu Lys Pro Tyr Arg Cys Cys Gly Cys Gly Lys Ala Phe
                          195   200   205

        Ser Gln Ser Ser Ser Leu Cys Ile His Gln Arg Val His Thr Gly Glu
                          210   215   220

        Lys Pro Phe Lys Cys Asp Glu Cys Gly Lys Ala Phe Ser Gln Ser Thr
        225   230   235   240

        Ser Leu Cys Ile His Gln Arg Val His Thr Lys Glu Arg Asn His Leu
                          245   250   255

        Lys Ile Ser Val Ile
                          260

        <210>   133
        <211>   296
        <212>   PRT
        <213>   Homo sapiens

        <300>
        <308>   Swissprot/P04233
        <309>   1987-03-20
        <313>   (1)..(296)

        <400>   133

        Met His Arg Arg Arg Ser Arg Ser Cys Arg Glu Asp Gln Lys Pro Val
        1   5   10   15

        Met Asp Asp Gln Arg Asp Leu Ile Ser Asn Asn Glu Gln Leu Pro Met
                          20   25   30

        Leu Gly Arg Arg Pro Gly Ala Pro Glu Ser Lys Cys Ser Arg Gly Ala
                          35   40   45

        Leu Tyr Thr Gly Phe Ser Ile Leu Val Thr Leu Leu Leu Ala Gly Gln
                  50   55   60

        Ala Thr Thr Ala Tyr Phe Leu Tyr Gln Gln Gln Gly Arg Leu Asp Lys
        65   70   75   80

        Leu Thr Val Thr Ser Gln Asn Leu Gln Leu Glu Asn Leu Arg Met Lys
                          85   90   95

```
        Leu Pro Lys Pro Pro Lys Pro Val Ser Lys Met Arg Met Ala Thr Pro
                    100             105             110

        Leu Leu Met Gln Ala Leu Pro Met Gly Ala Leu Pro Gln Gly Pro Met
                    115             120             125

        Gln Asn Ala Thr Lys Tyr Gly Asn Met Thr Glu Asp His Val Met His
                    130             135             140

        Leu Leu Gln Asn Ala Asp Pro Leu Lys Val Tyr Pro Pro Leu Lys Gly
        145             150             155             160

        Ser Phe Pro Glu Asn Leu Arg His Leu Lys Asn Thr Met Glu Thr Ile
                    165             170             175

        Asp Trp Lys Val Phe Glu Ser Trp Met His His Trp Leu Leu Phe Glu
                    180             185             190

        Met Ser Arg His Ser Leu Glu Gln Lys Pro Thr Asp Ala Pro Pro Lys
                    195             200             205

        Val Leu Thr Lys Cys Gln Glu Glu Val Ser His Ile Pro Ala Val His
                    210             215             220

        Pro Gly Ser Phe Arg Pro Lys Cys Asp Glu Asn Gly Asn Tyr Leu Pro
        225             230             235             240

        Leu Gln Cys Tyr Gly Ser Ile Gly Tyr Cys Trp Cys Val Phe Pro Asn
                    245             250             255

        Gly Thr Glu Val Pro Asn Thr Arg Ser Arg Gly His His Asn Cys Ser
                    260             265             270

        Glu Ser Leu Glu Leu Glu Asp Pro Ser Ser Gly Leu Gly Val Thr Lys
                    275             280             285

        Gln Asp Leu Gly Pro Val Pro Met
                    290             295


        <210>   134
        <211>   163
        <212>   PRT
        <213>   Homo sapiens

        <300>
        <308>   Swissprot/Q99969
        <309>   2000-05-30
        <313>   (1)..(163)

        <400>   134

        Met Arg Arg Leu Leu Ile Pro Leu Ala Leu Trp Leu Gly Ala Val Gly
        1               5               10              15

        Val Gly Val Ala Glu Leu Thr Glu Ala Gln Arg Arg Gly Leu Gln Val
```

                    20   25   30

        Ala Leu Glu Glu Phe His Lys His Pro Pro Val Gln Trp Ala Phe Gln
                35   40   45

        Glu Thr Ser Val Glu Ser Ala Val Asp Thr Pro Phe Pro Ala Gly Ile
            50   55   60

        Phe Val Arg Leu Glu Phe Lys Leu Gln Gln Thr Ser Cys Arg Lys Arg
        65   70   75   80

        Asp Trp Lys Lys Pro Glu Cys Lys Val Arg Pro Asn Gly Arg Lys Arg
                        85   90   95

        Lys Cys Leu Ala Cys Ile Lys Leu Gly Ser Glu Asp Lys Val Leu Gly
                    100   105   110

        Arg Leu Val His Cys Pro Ile Glu Thr Gln Val Leu Arg Glu Ala Glu
                115   120   125

        Glu His Gln Glu Thr Gln Cys Leu Arg Val Gln Arg Ala Gly Glu Asp
            130   135   140

        Pro His Ser Phe Tyr Phe Pro Gly Gln Phe Ala Phe Ser Lys Ala Leu
        145   150   155   160

        Pro Arg Ser

        <210>   135
        <211>   2386
        <212>   PRT
        <213>   Homo sapiens

        <300>
        <308>   Swissprot/P02751
        <309>   1986-07-21
        <313>   (1)..(2386)

        <400>   135

        Met Leu Arg Gly Pro Gly Pro Gly Leu Leu Leu Leu Ala Val Gln Cys
        1   5   10   15

        Leu Gly Thr Ala Val Pro Ser Thr Gly Ala Ser Lys Ser Lys Arg Gln
                    20   25   30

        Ala Gln Gln Met Val Gln Pro Gln Ser Pro Val Ala Val Ser Gln Ser
                35   40   45

        Lys Pro Gly Cys Tyr Asp Asn Gly Lys His Tyr Gln Ile Asn Gln Gln
            50   55   60

        Trp Glu Arg Thr Tyr Leu Gly Asn Ala Leu Val Cys Thr Cys Tyr Gly
        65   70   75   80

```
         Gly Ser Arg Gly Phe Asn Cys.Glu Ser Lys Pro Glu Ala Glu Glu Thr
                          85              90                  95
  5
         Cys Phe Asp Lys Tyr Thr Gly Asn Thr Tyr Arg Val Gly Asp Thr Tyr
                      100              105              110
 10
         Glu Arg Pro Lys Asp Ser Met Ile Trp Asp Cys Thr Cys Ile Gly Ala
                      115              120              125
 15
         Gly Arg Gly Arg Ile Ser Cys Thr Ile Ala Asn Arg Cys His Glu Gly
                  130              135              140
 20
         Gly Gln Ser Tyr Lys Ile Gly Asp Thr Trp Arg Arg Pro His Glu Thr
         145              150              155              160
 25
         Gly Gly Tyr Met Leu Glu Cys Val Cys Leu Gly Asn Gly Lys Gly Glu
                          165              170              175
 30
         Trp Thr Cys Lys Pro Ile Ala Glu Lys Cys Phe Asp His Ala Ala Gly
                      180              185              190
 35
         Thr Ser Tyr Val Val Gly Glu Thr Trp Glu Lys Pro Tyr Gln Gly Trp
                      195              200              205
 40
         Met Met Val Asp Cys Thr Cys Leu Gly Glu Gly Ser Gly Arg Ile Thr
             210              215              220
 45
         Cys Thr Ser Arg Asn Arg Cys Asn Asp Gln Asp Thr Arg Thr Ser Tyr
         225              230              235              240
 50
         Arg Ile Gly Asp Thr Trp Ser Lys Lys Asp Asn Arg Gly Asn Leu Leu
                          245              250              255
 55
         Gln Cys Ile Cys Thr Gly Asn Gly Arg Gly Glu Trp Lys Cys Glu Arg
                      260              265              270
 60
         His Thr Ser Val Gln Thr Thr Ser Ser Gly Ser Gly Pro Phe Thr Asp
                      275              280              285
 65
         Val Arg Ala Ala Val Tyr Gln Pro Gln Pro His Pro Gln Pro Pro Pro
             290              295              300
 70
         Tyr Gly His Cys Val Thr Asp Ser Gly Val Val Tyr Ser Val Gly Met
         305              310              315              320

         Gln Trp Leu Lys Thr Gln Gly Asn Lys Gln Met Leu Cys Thr Cys Leu
                          325              330              335

         Gly Asn Gly Val Ser Cys Gln Glu Thr Ala Val Thr Gln Thr Tyr Gly
                          340              345              350

         Gly Asn Ser Asn Gly Glu Pro Cys Val Leu Pro Phe Thr Tyr Asn Gly
```

	355				360				365		

5   Arg Thr Phe Tyr Ser Cys Thr Thr Glu Gly Arg Gln Asp Gly His Leu
        370   375   380

10   Trp Cys Ser Thr Thr Ser Asn Tyr Glu Gln Asp Gln Lys Tyr Ser Phe
     385   390   395   400

     Cys Thr Asp His Thr Val Leu Val Gln Thr Gln Gly Gly Asn Ser Asn
                     405   410   415

15

     Gly Ala Leu Cys His Phe Pro Phe Leu Tyr Asn Asn His Asn Tyr Thr
                 420   425   430

20   Asp Cys Thr Ser Glu Gly Arg Arg Asp Asn Met Lys Trp Cys Gly Thr
                 435   440   445

25   Thr Gln Asn Tyr Asp Ala Asp Gln Lys Phe Gly Phe Cys Pro Met Ala
         450   455   460

     Ala His Glu Glu Ile Cys Thr Thr Asn Glu Gly Val Met Tyr Arg Ile
     465   470   475   480

30

     Gly Asp Gln Trp Asp Lys Gln His Asp Met Gly His Met Met Arg Cys
                 485   490   495

35   Thr Cys Val Gly Asn Gly Arg Gly Glu Trp Thr Cys Ile Ala Tyr Ser
                 500   505   510

40   Gln Leu Arg Asp Gln Cys Ile Val Asp Asp Ile Thr Tyr Asn Val Asn
                 515   520   525

45   Asp Thr Phe His Lys Arg His Glu Glu Gly His Met Leu Asn Cys Thr
         530   535   540

50   Cys Phe Gly Gln Gly Arg Gly Arg Trp Lys Cys Asp Pro Val Asp Gln
     545   550   555   560

     Cys Gln Asp Ser Glu Thr Gly Thr Phe Tyr Gln Ile Gly Asp Ser Trp
                 565   570   575

55

     Glu Lys Tyr Val His Gly Val Arg Tyr Gln Cys Tyr Cys Tyr Gly Arg
                 580   585   590

60   Gly Ile Gly Glu Trp His Cys Gln Pro Leu Gln Thr Tyr Pro Ser Ser
                 595   600   605

65   Ser Gly Pro Val Glu Val Phe Ile Thr Glu Thr Pro Ser Gln Pro Asn
         610   615   620

     Ser His Pro Ile Gln Trp Asn Ala Pro Gln Pro Ser His Ile Ser Lys
         625   630   635   640

70

Tyr Ile Leu Arg Trp Arg Pro Lys Asn Ser Val Gly Arg Trp Lys Glu
                    645   650   655

5

Ala Thr Ile Pro Gly His Leu Asn Ser Tyr Thr Ile Lys Gly Leu Lys
              660   665   670

10

Pro Gly Val Val Tyr Glu Gly Gln Leu Ile Ser Ile Gln Gln Tyr Gly
              675   680   685

15

His Gln Glu Val Thr Arg Phe Asp Phe Thr Thr Thr Ser Thr Ser Thr
      690   695   700

Pro Val Thr Ser Asn Thr Val Thr Gly Glu Thr Thr Pro Phe Ser Pro
705   710   715   720

20

Leu Val Ala Thr Ser Glu Ser Val Thr Glu Ile Thr Ala Ser Ser Phe
              725   730   735

25

Val Val Ser Trp Val Ser Ala Ser Asp Thr Val Ser Gly Phe Arg Val
              740   745   750

30

Glu Tyr Glu Leu Ser Glu Glu Gly Asp Glu Pro Gln Tyr Leu Asp Leu
          755   760   765

Pro Ser Thr Ala Thr Ser Val Asn Ile Pro Asp Leu Leu Pro Gly Arg
    770   775   780

35

Lys Tyr Ile Val Asn Val Tyr Gln Ile Ser Glu Asp Gly Glu Gln Ser
785   790   795   800

40

Leu Ile Leu Ser Thr Ser Gln Thr Thr Ala Pro Asp Ala Pro Pro Asp
              805   810   815

45

Pro Thr Val Asp Gln Val Asp Asp Thr Ser Ile Val Val Arg Trp Ser
              820   825   830

50

Arg Pro Gln Ala Pro Ile Thr Gly Tyr Arg Ile Val Tyr Ser Pro Ser
          835   840   845

Val Glu Gly Ser Ser Thr Glu Leu Asn Leu Pro Glu Thr Ala Asn Ser
    850   855   860

55

Val Thr Leu Ser Asp Leu Gln Pro Gly Val Gln Tyr Asn Ile Thr Ile
865   870   875   880

60

Tyr Ala Val Glu Glu Asn Gln Glu Ser Thr Pro Val Val Ile Gln Gln
              885   890   895

65

Glu Thr Thr Gly Thr Pro Arg Ser Asp Thr Val Pro Ser Pro Arg Asp
          900   905   910

70

Leu Gln Phe Val Glu Val Thr Asp Val Lys Val Thr Ile Met Trp Thr

915   920   925

Pro Pro Glu Ser Ala Val Thr Gly Tyr Arg Val Asp Val Ile Pro Val
    930   935   940

Asn Leu Pro Gly Glu His Gly Gln Arg Leu Pro Ile Ser Arg Asn Thr
945   950   955   960

Phe Ala Glu Val Thr Gly Leu Ser Pro Gly Val Thr Tyr Tyr Phe Lys
                965   970   975

Val Phe Ala Val Ser His Gly Arg Glu Ser Lys Pro Leu Thr Ala Gln
            980   985   990

Gln Thr Thr Lys Leu Asp Ala Pro Thr Asn Leu Gln Phe Val Asn Glu
        995   1000   1005

Thr Asp Ser Thr Val Leu Val Arg Trp Thr Pro Pro Arg Ala Gln
    1010   1015   1020

Ile Thr Gly Tyr Arg Leu Thr Val Gly Leu Thr Arg Arg Gly Gln
    1025   1030   1035

Pro Arg Gln Tyr Asn Val Gly Pro Ser Val Ser Lys Tyr Pro Leu
    1040   1045   1050

Arg Asn Leu Gln Pro Ala Ser Glu Tyr Thr Val Ser Leu Val Ala
    1055   1060   1065

Ile Lys Gly Asn Gln Glu Ser Pro Lys Ala Thr Gly Val Phe Thr
    1070   1075   1080

Thr Leu Gln Pro Gly Ser Ser Ile Pro Pro Tyr Asn Thr Glu Val
    1085   1090   1095

Thr Glu Thr Thr Ile Val Ile Thr Trp Thr Pro Ala Pro Arg Ile
    1100   1105   1110

Gly Phe Lys Leu Gly Val Arg Pro Ser Gln Gly Gly Glu Ala Pro
    1115   1120   1125

Arg Glu Val Thr Ser Asp Ser Gly Ser Ile Val Val Ser Gly Leu
    1130   1135   1140

Thr Pro Gly Val Glu Tyr Val Tyr Thr Ile Gln Val Leu Arg Asp
    1145   1150   1155

Gly Gln Glu Arg Asp Ala Pro Ile Val Asn Lys Val Val Thr Pro
    1160   1165   1170

Leu Ser Pro Pro Thr Asn Leu His Leu Glu Ala Asn Pro Asp Thr
    1175   1180   1185

88

```
        Gly Val  Leu Thr Val Ser Trp  Glu Arg Ser Thr Thr  Pro Asp Ile
            1190                1195                1200

5

        Thr Gly  Tyr Arg Ile Thr Thr  Thr Pro Thr Asn Gly  Gln Gln Gly
            1205                1210                1215

10      Asn Ser  Leu Glu Glu Val Val  His Ala Asp Gln Ser  Ser Cys Thr
            1220                1225                1230

        Phe Asp  Asn Leu Ser Pro Gly  Leu Glu Tyr Asn Val  Ser Val Tyr
15          1235                1240                1245

        Thr Val  Lys Asp Asp Lys Glu  Ser Val Pro Ile Ser  Asp Thr Ile
            1250                1255                1260
20

        Ile Pro  Ala Val Pro Pro Pro  Thr Asp Leu Arg Phe  Thr Asn Ile
            1265                1270                1275

25
        Gly Pro  Asp Thr Met Arg Val  Thr Trp Ala Pro Pro  Pro Ser Ile
            1280                1285                1290

30      Asp Leu  Thr Asn Phe Leu Val  Arg Tyr Ser Pro Val  Lys Asn Glu
            1295                1300                1305

        Glu Asp  Val Ala Glu Leu Ser  Ile Ser Pro Ser Asp  Asn Ala Val
35          1310                1315                1320

        Val Leu  Thr Asn Leu Leu Pro  Gly Thr Glu Tyr Val  Val Ser Val
            1325                1330                1335
40

        Ser Ser  Val Tyr Glu Gln His  Glu Ser Thr Pro Leu  Arg Gly Arg
            1340                1345                1350

45
        Gln Lys  Thr Gly Leu Asp Ser  Pro Thr Gly Ile Asp  Phe Ser Asp
            1355                1360                1365

50      Ile Thr  Ala Asn Ser Phe Thr  Val His Trp Ile Ala  Pro Arg Ala
            1370                1375                1380

        Thr Ile  Thr Gly Tyr Arg Ile  Arg His His Pro Glu  His Phe Ser
55          1385                1390                1395

        Gly Arg  Pro Arg Glu Asp Arg  Val Pro His Ser Arg  Asn Ser Ile
            1400                1405                1410
60

        Thr Leu  Thr Asn Leu Thr Pro  Gly Thr Glu Tyr Val  Val Ser Ile
            1415                1420                1425

65
        Val Ala  Leu Asn Gly Arg Glu  Glu Ser Pro Leu Leu  Ile Gly Gln
            1430                1435                1440

70      Gln Ser  Thr Val Ser Asp Val  Pro Arg Asp Leu Glu  Val Val Ala
```

```
            1445                    1450                    1455

 5      Ala Thr Pro Thr Ser Leu Leu Ile Ser Trp Asp Ala Pro Ala Val
            1460                1465                1470


        Thr Val Arg Tyr Tyr Arg Ile Thr Tyr Gly Glu Thr Gly Gly Asn
10          1475                1480                1485


        Ser Pro Val Gln Glu Phe Thr Val Pro Gly Ser Lys Ser Thr Ala
            1490                1495                1500
15

        Thr Ile Ser Gly Leu Lys Pro Gly Val Asp Tyr Thr Ile Thr Val
            1505                1510                1515


20      Tyr Ala Val Thr Gly Arg Gly Asp Ser Pro Ala Ser Ser Lys Pro
            1520                1525                1530


        Ile Ser Ile Asn Tyr Arg Thr Glu Ile Asp Lys Pro Ser Gln Met
25          1535                1540                1545


        Gln Val Thr Asp Val Gln Asp Asn Ser Ile Ser Val Lys Trp Leu
            1550                1555                1560
30

        Pro Ser Ser Ser Pro Val Thr Gly Tyr Arg Val Thr Thr Thr Pro
            1565                1570                1575
35

        Lys Asn Gly Pro Gly Pro Thr Lys Thr Lys Thr Ala Gly Pro Asp
            1580                1585                1590


40      Gln Thr Glu Met Thr Ile Glu Gly Leu Gln Pro Thr Val Glu Tyr
            1595                1600                1605


        Val Val Ser Val Tyr Ala Gln Asn Pro Ser Gly Glu Ser Gln Pro
45          1610                1615                1620


        Leu Val Gln Thr Ala Val Thr Asn Ile Asp Arg Pro Lys Gly Leu
            1625                1630                1635
50

        Ala Phe Thr Asp Val Asp Val Asp Ser Ile Lys Ile Ala Trp Glu
            1640                1645                1650
55

        Ser Pro Gln Gly Gln Val Ser Arg Tyr Arg Val Thr Tyr Ser Ser
            1655                1660                1665


60      Pro Glu Asp Gly Ile His Glu Leu Phe Pro Ala Pro Asp Gly Glu
            1670                1675                1680


        Glu Asp Thr Ala Glu Leu Gln Gly Leu Arg Pro Gly Ser Glu Tyr
65          1685                1690                1695


        Thr Val Ser Val Val Ala Leu His Asp Asp Met Glu Ser Gln Pro
            1700                1705                1710
70
```

```
     Leu Ile  Gly Thr Gln Ser Thr  Ala Ile Pro Ala Pro  Thr Asp Leu
         1715             1720             1725

5
     Lys Phe  Thr Gln Val Thr Pro  Thr Ser Leu Ser Ala  Gln Trp Thr
         1730             1735             1740

10
     Pro Pro  Asn Val Gln Leu Thr  Gly Tyr Arg Val Arg  Val Thr Pro
         1745             1750             1755

     Lys Glu  Lys Thr Gly Pro Met  Lys Glu Ile Asn Leu  Ala Pro Asp
15       1760             1765             1770

     Ser Ser  Ser Val Val Val Ser  Gly Leu Met Val Ala  Thr Lys Tyr
         1775             1780             1785
20
     Glu Val  Ser Val Tyr Ala Leu  Lys Asp Thr Leu Thr  Ser Arg Pro
         1790             1795             1800

25
     Ala Gln  Gly Val Val Thr Thr  Leu Glu Asn Val Ser  Pro Pro Arg
         1805             1810             1815

30
     Arg Ala  Arg Val Thr Asp Ala  Thr Glu Thr Thr Ile  Thr Ile Ser
         1820             1825             1830

     Trp Arg  Thr Lys Thr Glu Thr  Ile Thr Gly Phe Gln  Val Asp Ala
35       1835             1840             1845

     Val Pro  Ala Asn Gly Gln Thr  Pro Ile Gln Arg Thr  Ile Lys Pro
         1850             1855             1860
40
     Asp Val  Arg Ser Tyr Thr Ile  Thr Gly Leu Gln Pro  Gly Thr Asp
         1865             1870             1875

45
     Tyr Lys  Ile Tyr Leu Tyr Thr  Leu Asn Asp Asn Ala  Arg Ser Ser
         1880             1885             1890

50
     Pro Val  Val Ile Asp Ala Ser  Thr Ala Ile Asp Ala  Pro Ser Asn
         1895             1900             1905

     Leu Arg  Phe Leu Ala Thr Thr  Pro Asn Ser Leu Leu  Val Ser Trp
55       1910             1915             1920

     Gln Pro  Pro Arg Ala Arg Ile  Thr Gly Tyr Ile Ile  Lys Tyr Glu
         1925             1930             1935
60
     Lys Pro  Gly Ser Pro Pro Arg  Glu Val Val Pro Arg  Pro Arg Pro
         1940             1945             1950

65
     Gly Val  Thr Glu Ala Thr Ile  Thr Gly Leu Glu Pro  Gly Thr Glu
         1955             1960             1965

70   Tyr Thr  Ile Tyr Val Ile Ala  Leu Lys Asn Asn Gln  Lys Ser Glu
```

	1970		1975		1980	

5

Pro Leu Ile Gly Arg Lys Lys Thr Asp Glu Leu Pro Gln Leu Val
　　1985　　　　　　1990　　　　　　1995

10

Thr Leu Pro His Pro Asn Leu His Gly Pro Glu Ile Leu Asp Val
　　2000　　　　　　2005　　　　　　2010

Pro Ser Thr Val Gln Lys Thr Pro Phe Val Thr His Pro Gly Tyr
　　2015　　　　　　2020　　　　　　2025

15

Asp Thr Gly Asn Gly Ile Gln Leu Pro Gly Thr Ser Gly Gln Gln
　　2030　　　　　　2035　　　　　　2040

20

Pro Ser Val Gly Gln Gln Met Ile Phe Glu Glu His Gly Phe Arg
　　2045　　　　　　2050　　　　　　2055

Arg Thr Thr Pro Pro Thr Thr Ala Thr Pro Ile Arg His Arg Pro
　　2060　　　　　　2065　　　　　　2070

25

Arg Pro Tyr Pro Pro Asn Val Gly Glu Glu Ile Gln Ile Gly His
　　2075　　　　　　2080　　　　　　2085

30

Ile Pro Arg Glu Asp Val Asp Tyr His Leu Tyr Pro His Gly Pro
　　2090　　　　　　2095　　　　　　2100

35

Gly Leu Asn Pro Asn Ala Ser Thr Gly Gln Glu Ala Leu Ser Gln
　　2105　　　　　　2110　　　　　　2115

40

Thr Thr Ile Ser Trp Ala Pro Phe Gln Asp Thr Ser Glu Tyr Ile
　　2120　　　　　　2125　　　　　　2130

Ile Ser Cys His Pro Val Gly Thr Asp Glu Glu Pro Leu Gln Phe
　　2135　　　　　　2140　　　　　　2145

45

Arg Val Pro Gly Thr Ser Thr Ser Ala Thr Leu Thr Gly Leu Thr
　　2150　　　　　　2155　　　　　　2160

50

Arg Gly Ala Thr Tyr Asn Ile Ile Val Glu Ala Leu Lys Asp Gln
　　2165　　　　　　2170　　　　　　2175

55

Gln Arg His Lys Val Arg Glu Glu Val Val Thr Val Gly Asn Ser
　　2180　　　　　　2185　　　　　　2190

60

Val Asn Glu Gly Leu Asn Gln Pro Thr Asp Asp Ser Cys Phe Asp
　　2195　　　　　　2200　　　　　　2205

65

Pro Tyr Thr Val Ser His Tyr Ala Val Gly Asp Glu Trp Glu Arg
　　2210　　　　　　2215　　　　　　2220

Met Ser Glu Ser Gly Phe Lys Leu Leu Cys Gln Cys Leu Gly Phe
　　2225　　　　　　2230　　　　　　2235

70

Gly Ser Gly His Phe Arg Cys Asp Ser Ser Arg Trp Cys His Asp
    2240   2245   2250

Asn Gly Val Asn Tyr Lys Ile Gly Glu Lys Trp Asp Arg Gln Gly
    2255   2260   2265

Glu Asn Gly Gln Met Met Ser Cys Thr Cys Leu Gly Asn Gly Lys
    2270   2275   2280

Gly Glu Phe Lys Cys Asp Pro His Glu Ala Thr Cys Tyr Asp Asp
    2285   2290   2295

Gly Lys Thr Tyr His Val Gly Glu Gln Trp Gln Lys Glu Tyr Leu
    2300   2305   2310

Gly Ala Ile Cys Ser Cys Thr Cys Phe Gly Gly Gln Arg Gly Trp
    2315   2320   2325

Arg Cys Asp Asn Cys Arg Arg Pro Gly Gly Glu Pro Ser Pro Glu
    2330   2335   2340

Gly Thr Thr Gly Gln Ser Tyr Asn Gln Tyr Ser Gln Arg Tyr His
    2345   2350   2355

Gln Arg Thr Asn Thr Asn Val Asn Cys Pro Ile Glu Cys Phe Met
    2360   2365   2370

Pro Leu Asp Val Gln Ala Asp Arg Glu Asp Ser Arg Glu
    2375   2380   2385

<210> 136
<211> 339
<212> PRT
<213> Homo sapiens

<300>
<308> Swissprot/P07858
<309> 1988-08-01
<313> (1)..(339)

<400> 136

Met Trp Gln Leu Trp Ala Ser Leu Cys Cys Leu Leu Val Leu Ala Asn
1   5   10   15

Ala Arg Ser Arg Pro Ser Phe His Pro Val Ser Asp Glu Leu Val Asn
            20   25   30

Tyr Val Asn Lys Arg Asn Thr Thr Trp Gln Ala Gly His Asn Phe Tyr
            35   40   45

Asn Val Asp Met Ser Tyr Leu Lys Arg Leu Cys Gly Thr Phe Leu Gly
            50   55   60

Gly Pro Lys Pro Pro Gln Arg Val Met Phe Thr Glu Asp Leu Lys Leu

```
          65                    70                    75                    80

 5    Pro Ala Ser Phe Asp Ala Arg Glu Gln Trp Pro Gln Cys Pro Thr Ile
                      85                  90              95

10    Lys Glu Ile Arg Asp Gln Gly Ser Cys Gly Ser Cys Trp Ala Phe Gly
                  100             105             110

      Ala Val Glu Ala Ile Ser Asp Arg Ile Cys Ile His Thr Asn Ala His
                  115             120             125
15
      Val Ser Val Glu Val Ser Ala Glu Asp Leu Leu Thr Cys Cys Gly Ser
                  130             135             140

20    Met Cys Gly Asp Gly Cys Asn Gly Gly Tyr Pro Ala Glu Ala Trp Asn
      145             150             155             160

25    Phe Trp Thr Arg Lys Gly Leu Val Ser Gly Gly Leu Tyr Glu Ser His
                  165             170             175

      Val Gly Cys Arg Pro Tyr Ser Ile Pro Pro Cys Glu His His Val Asn
                  180             185             190
30
      Gly Ser Arg Pro Pro Cys Thr Gly Glu Gly Asp Thr Pro Lys Cys Ser
                  195             200             205
35
      Lys Ile Cys Glu Pro Gly Tyr Ser Pro Thr Tyr Lys Gln Asp Lys His
                  210             215             220

40    Tyr Gly Tyr Asn Ser Tyr Ser Val Ser Asn Ser Glu Lys Asp Ile Met
      225             230             235             240

      Ala Glu Ile Tyr Lys Asn Gly Pro Val Glu Gly Ala Phe Ser Val Tyr
45                245             250             255

      Ser Asp Phe Leu Leu Tyr Lys Ser Gly Val Tyr Gln His Val Thr Gly
                  260             265             270
50
      Glu Met Met Gly Gly His Ala Ile Arg Ile Leu Gly Trp Gly Val Glu
                  275             280             285
55
      Asn Gly Thr Pro Tyr Trp Leu Val Ala Asn Ser Trp Asn Thr Asp Trp
                  290             295             300

60    Gly Asp Asn Gly Phe Phe Lys Ile Leu Arg Gly Gln Asp His Cys Gly
      305             310             315             320

      Ile Glu Ser Glu Val Val Ala Gly Ile Pro Arg Thr Asp Gln Tyr Trp
65                325             330             335

      Glu Lys Ile
70
```

<210> 137
<211> 1249
<212> PRT
<213> Homo sapiens

<300>
<308> Swissprot/P29144
<309> 1992-12-01
<313> (1)..(1249)

<400> 137

Met Ala Thr Ala Ala Thr Glu Glu Pro Phe Pro Phe His Gly Leu Leu
1   5   10   15

Pro Lys Lys Glu Thr Gly Ala Ala Ser Phe Leu Cys Arg Tyr Pro Glu
                20   25   30

Tyr Asp Gly Arg Gly Val Leu Ile Ala Val Leu Asp Thr Gly Val Asp
        35   40   45

Pro Gly Ala Pro Gly Met Gln Val Thr Thr Asp Gly Lys Pro Lys Ile
        50   55   60

Val Asp Ile Ile Asp Thr Thr Gly Ser Gly Asp Val Asn Thr Ala Thr
65   70   75   80

Glu Val Glu Pro Lys Asp Gly Glu Ile Val Gly Leu Ser Gly Arg Val
                85   90   95

Leu Lys Ile Pro Ala Ser Trp Thr Asn Pro Ser Gly Lys Tyr His Ile
                100   105   110

Gly Ile Lys Asn Gly Tyr Asp Phe Tyr Pro Lys Ala Leu Lys Glu Arg
                115   120   125

Ile Gln Lys Glu Arg Lys Glu Lys Ile Trp Asp Pro Val His Arg Val
        130   135   140

Ala Leu Ala Glu Ala Cys Arg Lys Gln Glu Glu Phe Asp Val Ala Asn
145   150   155   160

Asn Gly Ser Ser Gln Ala Asn Lys Leu Ile Lys Glu Glu Leu Gln Ser
                165   170   175

Gln Val Glu Leu Leu Asn Ser Phe Glu Lys Lys Tyr Ser Asp Pro Gly
                180   185   190

Pro Val Tyr Asp Cys Leu Val Trp His Asp Gly Glu Val Trp Arg Ala
        195   200   205

Cys Ile Asp Ser Asn Glu Asp Gly Asp Leu Ser Lys Ser Thr Val Leu
        210   215   220

Arg Asn Tyr Lys Glu Ala Gln Glu Tyr Gly Ser Phe Gly Thr Ala Glu

| 225 | 230 | 235 | 240 |

Met Leu Asn Tyr Ser Val Asn Ile Tyr Asp Asp Gly Asn Leu Leu Ser
        245   250   255

Ile Val Thr Ser Gly Gly Ala His Gly Thr His Val Ala Ser Ile Ala
            260   265   270

Ala Gly His Phe Pro Glu Glu Pro Glu Arg Asn Gly Val Ala Pro Gly
        275   280   285

Ala Gln Ile Leu Ser Ile Lys Ile Gly Asp Thr Arg Leu Ser Thr Met
    290   295   300

Glu Thr Gly Thr Gly Leu Ile Arg Ala Met Ile Glu Val Ile Asn His
305   310   315   320

Lys Cys Asp Leu Val Asn Tyr Ser Tyr Gly Glu Ala Thr His Trp Pro
            325   330   335

Asn Ser Gly Arg Ile Cys Glu Val Ile Asn Glu Ala Val Trp Lys His
            340   345   350

Asn Ile Ile Tyr Val Ser Ser Ala Gly Asn Asn Gly Pro Cys Leu Ser
        355   360   365

Thr Val Gly Cys Pro Gly Gly Thr Thr Ser Ser Val Ile Gly Val Gly
    370   375   380

Ala Tyr Val Ser Pro Asp Met Met Val Ala Glu Tyr Ser Leu Arg Glu
385   390   395   400

Lys Leu Pro Ala Asn Gln Tyr Thr Trp Ser Ser Arg Gly Pro Ser Ala
            405   410   415

Asp Gly Ala Leu Gly Val Ser Ile Ser Ala Pro Gly Gly Ala Ile Ala
        420   425   430

Ser Val Pro Asn Trp Thr Leu Arg Gly Thr Gln Leu Met Asn Gly Thr
        435   440   445

Ser Met Ser Ser Pro Asn Ala Cys Gly Gly Ile Ala Leu Ile Leu Ser
    450   455   460

Gly Leu Lys Ala Asn Asn Ile Asp Tyr Thr Val His Ser Val Arg Arg
465   470   475   480

Ala Leu Glu Asn Thr Ala Val Lys Ala Asp Asn Ile Glu Val Phe Ala
            485   490   495

Gln Gly His Gly Ile Ile Gln Val Asp Lys Ala Tyr Asp Tyr Leu Val
        500   505   510

Gln Asn Thr Ser Phe Ala Asn Lys Leu Gly Phe Thr Val Thr Val Gly
        515   520   525

Asn Asn Arg Gly Ile Tyr Leu Arg Asp Pro Val Gln Val Ala Ala Pro
        530   535   540

Ser Asp His Gly Val Gly Ile Glu Pro Val Phe Pro Glu Asn Thr Glu
545   550   555   560

Asn Ser Glu Lys Ile Ser Leu Gln Leu His Leu Ala Leu Thr Ser Asn
        565   570   575

Ser Ser Trp Val Gln Cys Pro Ser His Leu Glu Leu Met Asn Gln Cys
        580   585   590

Arg His Ile Asn Ile Arg Val Asp Pro Arg Gly Leu Arg Glu Gly Leu
        595   600   605

His Tyr Thr Glu Val Cys Gly Tyr Asp Ile Ala Ser Pro Asn Ala Gly
        610   615   620

Pro Leu Phe Arg Val Pro Ile Thr Ala Val Ile Ala Ala Lys Val Asn
625   630   635   640

Glu Ser Ser His Tyr Asp Leu Ala Phe Thr Asp Val His Phe Lys Pro
        645   650   655

Gly Gln Ile Arg Arg His Phe Ile Glu Val Pro Glu Gly Ala Thr Trp
        660   665   670

Ala Glu Val Thr Val Cys Ser Cys Ser Ser Glu Val Ser Ala Lys Phe
        675   680   685

Val Leu His Ala Val Gln Leu Val Lys Gln Arg Ala Tyr Arg Ser His
        690   695   700

Glu Phe Tyr Lys Phe Cys Ser Leu Pro Glu Lys Gly Thr Leu Thr Glu
705   710   715   720

Ala Phe Pro Val Leu Gly Gly Lys Ala Ile Glu Phe Cys Ile Ala Arg
                725   730   735

Trp Trp Ala Ser Leu Ser Asp Val Asn Ile Asp Tyr Thr Ile Ser Phe
                740   745   750

His Gly Ile Val Cys Thr Ala Pro Gln Leu Asn Ile His Ala Ser Glu
        755   760   765

Gly Ile Asn Arg Phe Asp Val Gln Ser Ser Leu Lys Tyr Glu Asp Leu
        770   775   780

Ala Pro Cys Ile Thr Leu Lys Asn Trp Val Gln Thr Leu Arg Pro Val

	785				790				795				800	

5

Ser Ala Lys Thr Lys Pro Leu Gly Ser Arg Asp Val Leu Pro Asn Asn
                    805   810   815

Arg Gln Leu Tyr Glu Met Val Leu Thr Tyr Asn Phe His Gln Pro Lys
                820   825   830

10

Ser Gly Glu Val Thr Pro Ser Cys Pro Leu Leu Cys Glu Leu Leu Tyr
            835   840   845

15

Glu Ser Glu Phe Asp Ser Gln Leu Trp Ile Ile Phe Asp Gln Asn Lys
    850   855   860

Arg Gln Met Gly Ser Gly Asp Ala Tyr Pro His Gln Tyr Ser Leu Lys
865   870   875   880

20

Leu Glu Lys Gly Asp Tyr Thr Ile Arg Leu Gln Ile Arg His Glu Gln
                885   890   895

25

Ile Ser Asp Leu Glu Arg Leu Lys Asp Leu Pro Phe Ile Val Ser His
            900   905   910

30

Arg Leu Ser Asn Thr Leu Ser Leu Asp Ile His Glu Asn His Ser Phe
        915   920   925

35

Ala Leu Leu Gly Lys Lys Lys Ser Ser Asn Leu Thr Leu Pro Pro Lys
    930   935   940

40

Tyr Asn Gln Pro Phe Phe Val Thr Ser Leu Pro Asp Asp Lys Ile Pro
945   950   955   960

Lys Gly Ala Gly Pro Gly Cys Tyr Leu Ala Gly Ser Leu Thr Leu Ser
                965   970   975

45

Lys Thr Glu Leu Gly Lys Lys Ala Asp Val Ile Pro Val His Tyr Tyr
            980   985   990

50

Leu Ile Pro Pro Pro Thr Lys Thr Lys Asn Gly Ser Lys Asp Lys Glu
            995   1000   1005

55

Lys Asp Ser Glu Lys Glu Lys Asp Leu Lys Glu Glu Phe Thr Glu
    1010   1015   1020

60

Ala Leu Arg Asp Leu Lys Ile Gln Trp Met Thr Lys Leu Asp Ser
    1025   1030   1035

65

Ser Asp Ile Tyr Asn Glu Leu Lys Glu Thr Tyr Pro Asn Tyr Leu
    1040   1045   1050

Pro Leu Tyr Val Ala Arg Leu His Gln Leu Asp Ala Glu Lys Glu
    1055   1060   1065

70

```
        Arg Met  Lys Arg Leu Asn Glu  Ile Val Asp Ala Ala  Asn Ala Val
            1070             1075             1080

        Ile Ser  His Ile Asp Gln Thr  Ala Leu Ala Val Tyr  Ile Ala Met
            1085             1090             1095

        Lys Thr  Asp Pro Arg Pro Asp  Ala Ala Thr Ile Lys  Asn Asp Met
            1100             1105             1110

        Asp Lys  Gln Lys Ser Thr Leu  Val Asp Ala Leu Cys  Arg Lys Gly
            1115             1120             1125

        Cys Ala  Leu Ala Asp His Leu  Leu His Thr Gln Ala  Gln Asp Gly
            1130             1135             1140

        Ala Ile  Ser Thr Asp Ala Glu  Gly Lys Glu Glu Glu  Gly Glu Ser
            1145             1150             1155

        Pro Leu  Asp Ser Leu Ala Glu  Thr Phe Trp Glu Thr  Thr Lys Trp
            1160             1165             1170

        Thr Asp  Leu Phe Asp Asn Lys  Val Leu Thr Phe Ala  Tyr Lys His
            1175             1180             1185

        Ala Leu  Val Asn Lys Met Tyr  Gly Arg Gly Leu Lys  Phe Ala Thr
            1190             1195             1200

        Lys Leu  Val Glu Glu Lys Pro  Thr Lys Glu Asn Trp  Lys Asn Cys
            1205             1210             1215

        Ile Gln  Leu Met Lys Leu Leu  Gly Trp Thr His Cys  Ala Ser Phe
            1220             1225             1230

        Thr Glu  Asn Trp Leu Pro Ile  Met Tyr Pro Pro Asp  Tyr Cys Val
            1235             1240             1245

        Phe


        <210>  138
        <211>  433
        <212>  PRT
        <213>  Homo sapiens

        <300>
        <308>  Swissprot/Q99538
        <309>  1997-11-01
        <313>  (1)..(433)

        <400>  138

        Met Val Trp Lys Val Ala Val Phe Leu Ser Val Ala Leu Gly Ile Gly
            1               5               10              15

        Ala Val Pro Ile Asp Asp Pro Glu Asp Gly Gly Lys His Trp Val Val
```

```
                    20                      25                      30

 5      Ile Val Ala Gly Ser Asn Gly Trp Tyr Asn Tyr Arg His Gln Ala Asp
                35                  40                  45


        Ala Cys His Ala Tyr Gln Ile Ile His Arg Asn Gly Ile Pro Asp Glu
10              50                  55                  60


        Gln Ile Val Val Met Met Tyr Asp Asp Ile Ala Tyr Ser Glu Asp Asn
        65                  70                  75                  80
15

        Pro Thr Pro Gly Ile Val Ile Asn Arg Pro Asn Gly Thr Asp Val Tyr
                        85                  90                  95
20
        Gln Gly Val Pro Lys Asp Tyr Thr Gly Glu Asp Val Thr Pro Gln Asn
                        100                 105                 110


25      Phe Leu Ala Val Leu Arg Gly Asp Ala Glu Ala Val Lys Gly Ile Gly
                115                 120                 125


        Ser Gly Lys Val Leu Lys Ser Gly Pro Gln Asp His Val Phe Ile Tyr
                130                 135                 140
30

        Phe Thr Asp His Gly Ser Thr Gly Ile Leu Val Phe Pro Asn Glu Asp
        145                 150                 155                 160
-35

        Leu His Val Lys Asp Leu Asn Glu Thr Ile His Tyr Met Tyr Lys His
                        165                 170                 175

40      Lys Met Tyr Arg Lys Met Val Phe Tyr Ile Glu Ala Cys Glu Ser Gly
                        180                 185                 190


        Ser Met Met Asn His Leu Pro Asp Asn Ile Asn Val Tyr Ala Thr Thr
45              195                 200                 205


        Ala Ala Asn Pro Arg Glu Ser Ser Tyr Ala Cys Tyr Tyr Asp Glu Lys
                210                 215                 220
50

        Arg Ser Thr Tyr Leu Gly Asp Trp Tyr Ser Val Asn Trp Met Glu Asp
        225                 230                 235                 240
55

        Ser Asp Val Glu Asp Leu Thr Lys Glu Thr Leu His Lys Gln Tyr His
                        245                 250                 255

60      Leu Val Lys Ser His Thr Asn Thr Ser His Val Met Gln Tyr Gly Asn
                        260                 265                 270


65      Lys Thr Ile Ser Thr Met Lys Val Met Gln Phe Gln Gly Met Lys Arg
                275                 280                 285


        Lys Ala Ser Ser Pro Val Pro Leu Pro Pro Val Thr His Leu Asp Leu
                290                 295                 300
70
```

```
Thr Pro Ser Pro Asp Val Pro Leu Thr Ile Met Lys Arg Lys Leu Met
305             310         315             320

Asn Thr Asn Asp Leu Glu Glu Ser Arg Gln Leu Thr Glu Glu Ile Gln
            325             330             335

Arg His Leu Asp Ala Arg His Leu Ile Glu Lys Ser Val Arg Lys Ile
            340             345             350

Val Ser Leu Leu Ala Ala Ser Glu Ala Glu Val Glu Gln Leu Leu Ser
            355             360             365

Glu Arg Ala Pro Leu Thr Gly His Ser Cys Tyr Pro Glu Ala Leu Leu
    370             375             380

His Phe Arg Thr His Cys Phe Asn Trp His Ser Pro Thr Tyr Glu Tyr
385             390             395             400

Ala Leu Arg His Leu Tyr Val Leu Val Asn Leu Cys Glu Lys Pro Tyr
            405             410             415

Pro Leu His Arg Ile Lys Leu Ser Met Asp His Val Cys Leu Gly His
            420             425             430

Tyr
```

```
<210>   139
<211>   342
<212>   PRT
<213>   Homo sapiens

<300>
<308>   Swissprot/P25105
<309>   1992-05-01
<313>   (1)..(342)

<400>   139
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```
Met Glu Pro His Asp Ser Ser His Met Asp Ser Glu Phe Arg Tyr Thr
1               5               10              15

Leu Phe Pro Ile Val Tyr Ser Ile Ile Phe Val Leu Gly Val Ile Ala
            20              25              30

Asn Gly Tyr Val Leu Trp Val Phe Ala Arg Leu Tyr Pro Cys Lys Lys
        35              40              45

Phe Asn Glu Ile Lys Ile Phe Met Val Asn Leu Thr Met Ala Asp Met
    50              55              60

Leu Phe Leu Ile Thr Leu Pro Leu Trp Ile Val Tyr Tyr Gln Asn Gln
65              70              75              80

Gly Asn Trp Ile Leu Pro Lys Phe Leu Cys Asn Val Ala Gly Cys Leu
```

                    85   90   95

 5   Phe Phe Ile Asn Thr Tyr Cys Ser Val Ala Phe Leu Gly Val Ile Thr
                    100   105   110

10   Tyr Asn Arg Phe Gln Ala Val Thr Arg Pro Ile Lys Thr Ala Gln Ala
                    115   120   125

15   Asn Thr Arg Lys Arg Gly Ile Ser Leu Ser Leu Val Ile Trp Val Ala
                130   135   140

        Ile Val Gly Ala Ala Ser Tyr Phe Leu Ile Leu Asp Ser Thr Asn Thr
        145   150   155   160

20   Val Pro Asp Ser Ala Gly Ser Gly Asn Val Thr Arg Cys Phe Glu His
                        165   170   175

25   Tyr Glu Lys Gly Ser Val Pro Val Leu Ile Ile His Ile Phe Ile Val
                        180   185   190

30   Phe Ser Phe Phe Leu Val Phe Leu Ile Ile Leu Phe Cys Asn Leu Val
                    195   200   205

35   Ile Ile Arg Thr Leu Leu Met Gln Pro Val Gln Gln Gln Arg Asn Ala
                210   215   220

        Glu Val Lys Arg Arg Ala Leu Trp Met Val Cys Thr Val Leu Ala Val
        225   230   235   240

40   Phe Ile Ile Cys Phe Val Pro His His Val Val Gln Leu Pro Trp Thr
                        245   250   255

45   Leu Ala Glu Leu Gly Phe Gln Asp Ser Lys Phe His Gln Ala Ile Asn
                    260   265   270

50   Asp Ala His Gln Val Thr Leu Cys Leu Leu Ser Thr Asn Cys Val Leu
                    275   280   285

        Asp Pro Val Ile Tyr Cys Phe Leu Thr Lys Lys Phe Arg Lys His Leu
        290   295   300

55   Thr Glu Lys Phe Tyr Ser Met Arg Ser Ser Arg Lys Cys Ser Arg Ala
        305   310   315   320

60   Thr Thr Asp Thr Val Thr Glu Val Val Val Pro Phe Asn Gln Ile Pro
                        325   330   335

65   Gly Asn Ser Leu Lys Asn
                        340

70   <210>   140
        <211>   359
        <212>   PRT

```
<213>   Homo sapiens

<300>
<308>   Swissprot/Q92187
<309>   1997-11-01
<313>   (1)..(359)

<400>   140
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Met Arg Ser Ile Arg Lys Arg Trp Thr Ile Cys Thr Ile Ser Leu Leu
1   5   10   15

Leu Ile Phe Tyr Lys Thr Lys Glu Ile Ala Arg Thr Glu Glu His Gln
            20   25   30

Glu Thr Gln Leu Ile Gly Asp Gly Glu Leu Ser Leu Ser Arg Ser Leu
        35   40   45

Val Asn Ser Ser Asp Lys Ile Ile Arg Lys Ala Gly Ser Ser Ile Phe
    50   55   60

Gln His Asn Val Glu Gly Trp Lys Ile Asn Ser Ser Leu Val Leu Glu
65   70   75   80

Ile Arg Lys Asn Ile Leu Arg Phe Leu Asp Ala Glu Arg Asp Val Ser
            85   90   95

Val Val Lys Ser Ser Phe Lys Pro Gly Asp Val Ile His Tyr Val Leu
            100   105   110

Asp Arg Arg Arg Thr Leu Asn Ile Ser His Asp Leu His Ser Leu Leu
        115   120   125

Pro Glu Val Ser Pro Met Lys Asn Arg Arg Phe Lys Thr Cys Ala Val
        130   135   140

Val Gly Asn Ser Gly Ile Leu Leu Asp Ser Glu Cys Gly Lys Glu Ile
145   150   155   160

Asp Ser His Asn Phe Val Ile Arg Cys Asn Leu Ala Pro Val Val Glu
                165   170   175

Phe Ala Ala Asp Val Gly Thr Lys Ser Asp Phe Ile Thr Met Asn Pro
            180   185   190

Ser Val Val Gln Arg Ala Phe Gly Gly Phe Arg Asn Glu Ser Asp Arg
        195   200   205

Glu Lys Phe Val His Arg Leu Ser Met Leu Asn Asp Ser Val Leu Trp
    210   215   220

Ile Pro Ala Phe Met Val Lys Gly Gly Glu Lys His Val Glu Trp Val
225   230   235   240

Asn Ala Leu Ile Leu Lys Asn Lys Leu Lys Val Arg Thr Ala Tyr Pro

                    245   250   255

            Ser Leu Arg Leu Ile His Ala Val Arg Gly Tyr Trp Leu Thr Asn Lys
5   260   265   270

            Val Pro Ile Lys Arg Pro Ser Thr Gly Leu Leu Met Tyr Thr Leu Ala
10   275   280   285

            Thr Arg Phe Cys Asp Glu Ile His Leu Tyr Gly Phe Trp Pro Phe Pro
                         290   295   300
15
            Lys Asp Leu Asn Gly Lys Ala Val Lys Tyr His Tyr Tyr Asp Asp Leu
            305   310   315   320

20   Lys Tyr Arg Tyr Phe Ser Asn Ala Ser Pro His Arg Met Pro Leu Glu
                             325   330   335

            Phe Lys Thr Leu Asn Val Leu His Asn Arg Gly Ala Leu Lys Leu Thr
25   340   345   350

            Thr Gly Lys Cys Val Lys Gln
                         355
30

            <210> 141
            <211> 218
            <212> PRT
35   <213> Homo sapiens

            <300>
            <308> Swissprot/Q15907
            <309> 1998-07-15
40   <313> (1)..(218)

            <400> 141

            Met Gly Thr Arg Asp Asp Glu Tyr Asp Tyr Leu Phe Lys Val Val Leu
45   1   5   10   15

            Ile Gly Asp Ser Gly Val Gly Lys Ser Asn Leu Leu Ser Arg Phe Thr
                         20   25   30
50
            Arg Asn Glu Phe Asn Leu Glu Ser Lys Ser Thr Ile Gly Val Glu Phe
                     35   40   45
55
            Ala Thr Arg Ser Ile Gln Val Asp Gly Lys Thr Ile Lys Ala Gln Ile
                     50   55   60

60   Trp Asp Thr Ala Gly Gln Glu Arg Tyr Arg Ala Ile Thr Ser Ala Tyr
            65   70   75   80

            Tyr Arg Gly Ala Val Gly Ala Leu Leu Val Tyr Asp Ile Ala Lys His
65   85   90   95

            Leu Thr Tyr Glu Asn Val Glu Arg Trp Leu Lys Glu Leu Arg Asp His
                         100   105   110
70

```
Ala Asp Ser Asn Ile Val Ile Met Leu Val Gly Asn Lys Ser Asp Leu
        115                 120                 125

Arg His Leu Arg Ala Val Pro Thr Asp Glu Ala Arg Ala Phe Ala Glu
        130                 135                 140

Lys Asn Asn Leu Ser Phe Ile Glu Thr Ser Ala Leu Asp Ser Thr Asn
145                 150                 155                 160

Val Glu Glu Ala Phe Lys Asn Ile Leu Thr Glu Ile Tyr Arg Ile Val
                165                 170                 175

Ser Gln Lys Gln Ile Ala Asp Arg Ala Ala His Asp Glu Ser Pro Gly
            180                 185                 190

Asn Asn Val Val Asp Ile Ser Val Pro Pro Thr Thr Asp Gly Gln Lys
        195                 200                 205

Pro Asn Lys Leu Gln Cys Cys Gln Asn Leu
        210                 215
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